

**Terminal Evaluation of the UNEP
Haiti Sustainable Energy Project II (HSE II)
Project ID: PIMS 01968
(2016-2021)**



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Front cover: CEAC Power Plant (Consultant)

Page 56, Figure 6: Port-a-Piment grid 230 kVA and 250 kVA gensets. (Consultant)

Page 87, Figure 9: Discarded Fire Extinguishers in CEAC yard. (Consultant)

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Haiti Sustainable Energy Project II

Project ID: PIMS 01968

(2016-2021)

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The evaluation consultant hopes that the findings, conclusions and recommendations will contribute to the improvement of similar projects in Haiti as well as other countries and regions.

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ABOUT THE EVALUATION

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Brief Description: This report is the Terminal Evaluation of the UNEP Haiti Sustainable Energy Project II implemented between December 2016 and June 2021. The project's primary task was the construction of hybrid diesel-PV mini-grid that would serve 2,000 beneficiary households (~5,040 people). The project's overall development goal was to, 1) Generate practical and lasting benefits for the South Department, 2) Demonstrate and seed fund solutions suitable for replication at a national scale. The evaluation sought to assess project performance (in terms of relevance, effectiveness and efficiency), and determine outcomes and impacts (actual and potential) stemming from the project, including their sustainability. The evaluation has two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP, and the relevant agencies of the project participating countries.

Key words: Renewable energy, hybrid electric grid, mini-grid, rural electrification, electricity cooperative, Haiti.

Primary data collection period: May 1 to July 30, 2022

Field mission dates: May 1 to May 8, 2022

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LIST OF ACRONYMS

ANARSE	Autorité Nationale de Régulation du Secteur de l'Energie
BESS	Battery Energy Storage System
BNEE	Bureau National d'Evaluation Environnemental
BSP	Bali Strategic Plan
CA	Conseil d'Administration
CalCEF-EPP	California Clean Energy Fund-Energy Peace Partners
CARICOM	Caribbean Community
CARILEC	Caribbean Electric Utility Service Corporation
CCCCC	Caribbean Community Climate Change Centre
CCEP	Caracol Community Electrification Program
CEAC	Cooperative Eléctrique de l'Arrondissement des Côteaux
CERE	Centre of Excellence for Renewable Energy
CIC	Construction Industry Council
CIESIN	Center for International Earth Science Information Network
CIF	Climate Investment Fund
CIP	Caracol Industrial Park
CNC	Conseil National des Cooperatives
CPCS	Caisse Populaire de la Côte Sud
CRS	Catholic Relief Services
CSI	Côte Sud Initiative (Southwest Sustainable Development Programme)
CTF	Clean Technology Fund
CU-MRG	Columbia University – Modi Research Group (Sustainable Engineering Lab)
DER	Distributed energy resources
DFC	International Development Finance Corporation
EA	Expected Accomplishment
ECE	Energy Conservation and Efficiency
EDH	L'Électricité d'Haïti
EE	Energy Efficiency
EEBC	Energy Efficient Building Code
EI	Earth Institute
EII	Energy Intensity Index
EOU	Evaluation Office of UNEP
EPP	Energy Peace Partners.
ERA	Environmental Regulatory Authority
ERAF	Rural Electrification and Empowerment of Women Project
ESE	Environment, Social and Economic
ESL	Energy Saving Light
F2F	Face to Face (interview)
GCF	Green Climate Fund
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	Greenhouse Gas (emissions)
GNI	Gross National Income
GoH	Government of Haiti
HEI	Haiti Energy Institute
HELP	Haiti Education and Leadership Program
HR	Human Resources
HREC	Haiti Rural Energy Cooperative,
HRF	Haiti Recovery Fund
HRI	Haiti Regeneration Initiative
HSE	Haiti Sustainable Energy

HTOC	Haiti Operations Centre (UNOPS)
IADB	Inter-American Development Bank
IDB	Inter-American Development Bank
IDB Invest	Inter-American Investment Corporation
IECC	International Energy Conservation Code
IFAD	The International Fund for Agricultural Development
IFC	International Finance Corporation
HEI	L'Institut Haïtien De L'Energie
IHRC	Interim Haiti Recovery Commission
IPP	Independent Power Producer
ITC	International Trade Centre
KII	Key Informant
KW	Kilowatt
LGGE	Low Greenhouse Gas Emissions
IREC	International renewable energy credits
MDG	Millennium Development Goals
MoU	Memorandum of Understanding
MTPTC	Ministère des Travaux Publics, Transports et Communications
MTR	Mid Term Review
MTS	Medium Term Strategy
MV	Megavolt
MVP	Millennium Village Project
MW	Megawatt
NEPA	National Planning and Environment Agency
NGO	Non-Governmental Organisation
NK	Norwegian Krone
NMFA	Norway Ministry of Foreign Affairs
NRECA	US National Rural Electric Cooperative Association
NREL	US National Renewable Energy Laboratory
OCHA	Office for the Coordination of Humanitarian Affairs
OGEF	Off Grid Electricity Fund
OGEF	Off-Grid Electricity Fund
OPDEM	Office of Disaster Preparedness and Emergency Management
OPIC	Overseas Private Investment Corporation
ORE	Organization for the Rehabilitation of the Environment
PAC	Project Advisory Committee
PCB	Polychlorinated Biphenyl
PCDMB	Post-Conflict and Disaster Management Branch
PHARES	Haiti Program for Access to Solar Energy for Rural
PIC	Caracol Industrial Park
PIMS	Programm/Project Information Management System
PMU	Project Management Unit
PoW	Programme of Work
PPA	Power Purchase Agreement
PPD	Partners in Population and Development
PPG	Project Preparation Grant
PRC	Project Review Committee
ProDoc	Project Document
PUE	Productive Use of Energy
PV	Photovoltaic
RE	Renewable Energy
REC	Renewable Energy
ROLAC	Regional Office for Latin America and the Caribbean
SBCI	Sustainable Buildings and Climate Initiative (UNEP)

SC	Sustainable Consumption
SD	Sustainable Development
SDG	Sustainable Development Goals
SE CB	Sustainable Energy Capacity Building
SELF	Solar Electric Light Fund
SODAR	Sonic Distance and Ranging (for measuring wind speeds and cycles)
SREP	Scaling up Renewable Energy Program in Low Income Countries
SREP	Scaling-up Renewable Energy Program
S-SC	South-South Cooperation
S-SC	South-South Cooperation
SSH	Small Scale Hydropower
ToC	Theory of Change
ToR	Terms of Reference
UN	United Nations
UNDG	United Nations Development Group
UNDP	United Nations Development Program
UNEP	United Nations Environment Programme
UNICEF	United Nations International Children's Emergency Fund
UniQ	Université Quisqueya
UNOPS	United Nations Office for Project Services
USD	United States Dollars
USAID	United States Agency for International Development
WFP	World Food Programme

PROJECT IDENTIFICATION

Table 1: Project Identification Table

UNEP PIMS ID	01968		
Executing Agency	UNEP		
Co-implementing Agencies	UNEP, UNOPS		
Implementing Partners	CEAC, EarthSpark International, SELF, HELP		
Implementing Partners cancelled	NRECA, HEI-UNIQ		
Funding Agencies	NMFA, IDB, USAID, NRECA		
Sub-program:	Disasters and Conflicts		
Expected Accomplishment(s):	EA 2b) The capacity of countries to use natural resource and environmental management to support sustainable recovery from natural and man-made disasters is improved. Indicator. Percentage of countries affected by natural and/or man-made disasters that progress at least one step in four of six components in the country capacity framework for natural resource and environmental management, with the assistance of UNEP.		
UNEP approval date:	December 2016	Programme of Work Output(s):	PoW 2016-2017 PoW 2018-2019 PoW 2020-2021
Expected start date:	December 2016	Actual start date:	December 2016
Planned operational completion date:	December 2019	Actual operational completion date:	June 2021
Planned total project budget at approval:	USD 6,118,938 ¹	Actual total expenditures reported as of June 30, 2021:	USD 5,268,488
Planned Environment Fund allocation:	USD 0	Actual Environment Fund expenditures reported as of June 30, 2021:	USD 0
Planned Extra budgetary Financing:	USD 4,618,938	Secured Extra budgetary Financing:	USD 3,779,365
		Actual Extra budgetary Financing expenditures as of June 30, 2021:	USD 549,550
First disbursement:	USD 1,173,571 (i.e NOK 10,000,000 delivered in December 2016)	Planned date financial closure:	30 June 2022
No. of formal project revisions:	2	Date of last approved project revision:	December 2020
No. of Steering Committee meetings:	1	Date of last/next Steering Committee meeting:	28/11/2017
Mid-term Review/ Evaluation	Q1 2018	Mid-term Review	N/A

¹ As per the Project Document (USD 4,618,938 from NMFA + USD 1,500,000 from co-financing). Last approved budget as per Revision No. 2 = USD 5,264,484

Terminal Evaluation (planned date):	September 2019	Terminal Evaluation	2/2022 – 7/2022
Coverage - Country(ies):	Haiti	Coverage - Region(s):	Caribbean
Dates of previous project phases:	PIMS 1550 "Haiti Sustainable Energy: South Department Norway Ministry of Foreign Affairs project (HSE I)" 2012-2016		
Status of future project phases	N/A		

EXECUTIVE SUMMARY

Project Background

1. Haiti has one of the lowest rates of electrification in the world, a mere annual per capita 37 kWh, 2.4 percent of the 1,487 kWh per capita consumption of the neighbouring Dominican Republic. The vast majority of those who are connected to a grid are in the metropolitan area of the capital city Port-au-Prince, where lives 1/3rd of Haiti population. The South of Haiti where HSE was implemented, had/has exceptional poor electric service even by Haiti standards.²
2. Low levels of electrification exist as part of a forty years of political instability and civil unrest. The Haitian state is heavily dependent on foreign aid and has proven largely incapable of managing foreign investment in the energy sector.
3. Another impediment has been a monopoly over all aspects of generation, distribution, and sale of electricity in Haiti under control the state-owned entity, Electricité d'Haiti (EDH).
4. HSE II coincides with a opportune historical era for the Haitian energy sector. In December 2011, the Government of Haiti (GoH) recognized this demand in a Rural Electrification Strategy Paper, and breaking with its traditional emphasis on a national grid called for rural mini-grids from renewable energy. In 2016, the GoH revoked the EDH energy monopoly opening the way for more small, rural grid projects for which HSE II could serve as a model.
5. HSE II was preceded by a first project phase, HSE I, which oversaw the original construction of the Coteau hybrid-micro grid and succeeded in providing electric service to 1,008 households.
6. On October 4th 2016, two months before HSE I was to be completed, category 4 Hurricane Matthew made a direct hit on the activity area. Seventy percent of the PV panels, 25 percent of the grid itself, and more than half the homes of beneficiaries were destroyed. Consequently, two of the original total of four HSE II main activities became focused on reconstructing destroyed infrastructure of HSE I.

Project Approach

7. The Haiti Sustainable Energy II (HSE II) was 4.5 year electrification project implemented from December 2016 to June 2021. The primary funding agency was the Norway Ministry of Foreign Affairs were (NFMA). Additional support came from IDB, and USAID.

² See World Development Indicators <https://datacatalog.worldbank.org/search/dataset/0037712>

8. It was the second of two projects (HSE I and HSE II).
9. The scope of the project was supporting reconstruction of 2 damaged mini-grids and 12 damaged health centre PV units, building the economic, technical and managerial sustainability of a governing electric cooperative, and building national technical capacity in sustainable energy technology.
10. The specific target area was a 28 km strip of coast located in three contiguous rural communes/counties (pop ~60,000) in the Department of the South, Haiti. The counties were Roche-à-Bateaux (pop ~18,000), Côteaux (pop ~21,000), Port-à-Piment (pop ~19,000).
11. The project was implemented by UNEP Policy and Programme Division and Crisis Management Branch, and the Disasters and Conflicts Subprogramme, specifically under the Country Programme in Haiti. part of UNEP's overall goals in the South of Haiti to, 1) Generate practical and lasting benefits for the South Department, 2) Demonstrate and seed fund solutions suitable for replication at a national scale.
12. A co-executing partner was UNOPS and implementing partners United Nations Office for Project Services (UNOPS), Cooperative Électrique de l'Arrondissement des Côteaux (CEAC), EarthSpark International (referred as EarthSpark in the rest of the report), Solar Electric Light Fund (SELF) and other stakeholders involved in Renewable Energy projects in Haiti.
13. The project corresponded with the UNEP Medium-Term Strategy of 2014 – 2017³, described under the Climate Change Strategic Focus Expected Accomplishment (2b): "The capacity of countries to use natural resource and environmental management to support sustainable recovery from natural and man-made disasters is improved."
14. In order to understand the impact of the project, the consultant developed a reformulated TOC (Theory of Change), restructuring of HSE II into the three following components,⁴
15. Infrastructure: all infrastructural activities and outputs, including clinic PV units, both grids, and the utilization of those products,⁵
16. Cooperative Capacity Building and Technical Assistance: anything to do with function of the electric cooperative, such as capacity building, cash advances, and administrative assistance.
17. National Capacity Development, Communication and Policy Products: anything to do with non-CEAC training, education, communication and dissemination of information, such as website, courses, and promotion of research, and all support given at the national and governmental level.
18. The TOC is based on a series of implicit assumptions and risks, the most important of which were never stated in the Project Design Documents. Specifically,

³ https://wedocs.unep.org/bitstream/handle/20.500.11822/7670/-UNEP_Medium_Term_Strategy_2014-2017-2015MTS_2014-2017.pdf;

⁴ Their 'restructured' components are essentially identical to original categories in the original Project Document Logical Framework outputs

⁵ Note that the project supported the reconstruction of two grids: the CEAC grid in the commune of Coteaux and another grid in the neighbouring commune of Les Anglais. The Les Anglais grid was supported with a USD 200,000 grant to EarthSpark. The project did not participate in any other aspect of supporting, monitoring or assisting with that grid.

19. access to electricity improves quality of life, and improve living standards, thus,
20. people living in the target area want access to electricity and will readily connect to an available grid to obtain affordably priced electricity,
21. that a local, representative electric cooperative equipped with staff trained in management could govern the grid in an economically sustainable manner,
22. that the national government and educational institutions would, if funded, fulfil their commitments to the project, and,
23. that there would be strong buy in from all stakeholders: the local population, institutions and businesses, local and national government, and Haitian students who were expected to patronize the new courses in renewable energy.

This Evaluation

24. The purpose of this evaluation is twofold: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote operational improvement, learning and knowledge sharing through results and lessons learned among UNEP.
25. The evaluation is guided by the Terms of Reference in ANNEX 5 and undertaken in line with the UNEP evaluation guidelines.
26. The evaluation involved, (i) a desk review of key project documents at design and implementation stage, (ii) remote interviews with key stakeholders, (iii) seven days visiting sites and interviewing implementors and beneficiaries (iv) a 211 household survey electric cooperative members vs. non-members.

Key findings

Strategic relevance

27. HSE II project aligned closely with Donor, UNEP, UN, CARICOM, and Haiti Government energy sector strategies. The 2016 -2021 Moise administration made electrification of the country the cornerstone of its national development initiatives, something that evolved into a struggle for control the national electric grid and is suspected of being a partial motive for the 2021 assassination of the Haitian President Moise.

Quality of project design

28. The logic behind the HSE II is holistic covering infrastructure, governance of the infrastructure, and the building of technical capacity that would be needed to make the project technologically sustainable

Key Strengths:

- Maximized bureaucratic strengths and experiences of UNEP and UN.
- Filled an unmet need/want for electricity in the region, one that may otherwise not have been filled.
- The use of PV technology was timely and appropriate, being renewable and clean.
- Attempted to build technical capacity and increase SE awareness

Key Weaknesses:

- HSE I and HSE II were in fact heavily dependent on procuring resources from outside of the island to get the infrastructure built.
- Seventy percent of the grid electric is produced by diesel generators, making continued sustainability of the project dependent on stable petrol prices and heavy periodic outlays for purchase of new generators.
- A review of the history of cooperatives and associations in Haiti should have given the planners little hope of success using a cooperative.
- SE CB component was based on logic contrary to prevailing demographic patterns (i.e. most Haitians want to be in Port-au-Prince not the province).
- The project ignored the advantages of aligning with the DR capacity and markets.

Nature of external context.

29. The project occurred in the context of significant political instability, civil unrest, and meteoric increase in criminal gang activity in the capital city of Port-au-Prince, upon which the south depends for access to technologies, technicians, fuel, and administrative support. It also occurred in the context of a violent national struggle over control of the energy sector, pitting the government against elite energy. A summary of events include.

- Violent Political Gridlock and frequent riots.
- Open gang warfare and government loss of control of 80 percent of the capital city
- 7.2 earthquake on August 2021 that destroyed three of the main hospitals where PV system were installed
- Assassination of the Haitian president. On July 7, 2021.
- Instability in the Haitian Currency by factor of 2.5 over the life of the project.
- Fluctuation in price of petroleum
- The project was also impacted by the COVID epidemic, resulting supply chain and administrative disruptions.

Effectiveness

30. Infrastructure: The actual grids were both achieved and clinic PV systems were replaced. There were some shortcomings. Specifically, CEAC fell about 20 percent short on target number of connections and 30 percent short on hours of electric delivered per day. The CEAC grid also fell short in that, despite intentions to add more line to the grid, they added no additional line beyond what had been laid in HSE I. An August 2021 earthquake destroyed three of the principal hospitals where the PV systems had been replaced. The only hospital ever connected to the CEAC grid, was that of Les Anglais.

31. CEAC Cooperative: CEAC staff in technical skills. Effective governance as a cooperative was not achieved.

32. National CB: Most national CB activities were cancelled because of non-performance by implementing partners and government entities.

Sustainability

Socio-political Sustainability

33. The government has still not developed a National SE Plan, but there is strong moral support from the government, including new PHARES (Haiti Program for Access to Solar Energy for Rural) plan to construct mini-grids on Haiti's southern peninsula.
34. There is a core group of institutions working in the Far-South of Haiti. Specifically, EarthSpark, EDH, and CEAC. There is also strong donor support. These factors all represent synergistic institutional opportunities that can be drawn on to make draw together the Far-Southern Haiti emerging networks of micro-grids and the organizations that manage them.

Financial Sustainability

35. It was known since HSE I and at design-stage for HSE II that CEAC could not become economically sustainable at current billing rates. Yet, prices remain the same.
36. The hybrid grid's dependency on diesel generators for 70 percent of the electricity production and the recent 3x increase in petroleum cost as well as the scarcity in Haiti supplies has meant that CEAC operational deficits have skyrocketed.
37. It is clear that without new donor support CEAC will not economically survive longer than a few more months from the writing of this evaluation. r two office vehicles to fall into disrepair.
38. On top of all the above expenses, short falls, and devaluating equipment, when they are exhausted, CEAC does not and will not have the money to replace the source of 70 percent of CEAC power, the two gensets.

Sustainability of the Institutional Framework

39. The CEAC cooperative fell short on every aspect of governance. A brief review includes: CEAC has not held voting or convened a general assembly since 2017, CEAC does not communicate with members, the leadership is quite literally and admittedly afraid to communicate with members. They did not effectively inform members of the loan program, did not manage the gender activities effectively. CEAC as a cooperative is de facto defunct.
40. Cooperatives have a 50 year history of failure in Haiti. They simply do not work, not even in the agricultural sector.
41. At the core of the failure of the CEAC cooperative is a disjunction between what foreigner donors and development experts consider a cooperative and what the Haitian government and Haitian citizens consider a cooperative. For Haitians, both the common legal and colloquial definition of a cooperative is a lending institution, more akin to a US Credit Union. It is these types of institutions that Haiti's National Council of Cooperative (CNC) was created to oversee. This misunderstanding of definition explains why CEAC was the very first Electric Cooperative in Haiti, i.e. because it is not

a cooperative to most Haitians and the model was imposed on Haitian institutions eager to please donors.⁶

42. On top of these factors UN Electric recognized in their second to final quarterly report (Q1-2021) that after some 8 years of operation, the “chosen” general manager of CEAC does not have the required technical background nor the leadership. This recognition basically comes after the fact, in the last closeout meeting for the HSE II.⁷

Financial Management

43. The financial accounting was difficult to understand. The first year of HSE II is omitted from UN Electric budgets. Expenses were generalized and differences between budgets costs and real expenditures appear in many cases to go unaccounted for. The same is true for cancelled components. While written narratives sometimes mentioned shifted funds, it is difficult to understand how much was lost on cancelled projects and where the remaining funds were re-allocated, if there is any record at all. Accounting prior to the final budget review records budget cost of equipment in lump sums round to the nearest USD 10,000, such as cost of vehicle at exactly USD 40,000, cost of meters at USD 300,000. No final consolidated and detailed budget was in the provided documents, nor was one provided upon request.

Efficiency

44. The project duration was originally planned at 38 months (December 2016 to February 2020) but with three extensions took a total of 54 months (December 2016 to June 2021).
45. By September 2017, 650 of the original 1,008 customers were reconnected and the grid was operating for 4 hours in the evenings on the diesel generators. But there were considerable delays. Problems that UNEP and UNOPS attributed to continued instability and insecurity at the national level, late co-finance disbursements, problems hiring staff and locating competent technician, withdrawal of the major implementing partner NRECA, procurement of equipment from abroad, and not least of all, performance shortfalls with CEAC.
46. To address the problems, the project was reformulated in the fourth financial quarter of 2017 under a new entity, UN Electric, a model that entailed UNOPS taking over NRECA’s prior responsibility for specific activities and outputs.
47. UN Electric was adaptive, but there were still significant delays caused by the factors seen above and the COVID pandemic.
48. Gender and CEAC training were completed but were half-hearted.

Monitoring and Reporting:

49. Both UN agencies worked together to monitor activities, both have their own standardized systems for monitoring and evaluation, but oversight responsibility ultimately rested with the Geneva based UNEP team.

⁶ The US definition of a Cooperative is more akin to the Haitian definition of an “Association.”

⁷ Quarterly REPORT – Jan 2021 - Mars 2021 Date submitted: April 2021 21013-001 / UN Electric I

50. There was not a perfect conformance with quarterly reporting. Infrastructural monitoring and reporting was excellent. The project definitively dropped ball on monitoring and responding to everything non-infrastructural.

Responsiveness to Human Rights and Gender Equality:

51. Any attempts at gender equity in the credit program is invisible. Not a single recommendation regarding was implemented, not even the 50 percent of loans going to females and none of the specified women's organizations ever received support from CEAC.

Conclusion

52. HSE II succeeded in creating infrastructure that will have lasting benefits for the region it serves, but it fell far short on governance and all other activities qualitative in nature. Benefits of the grid will unlikely be delivered under the CEAC governance model. Rather, the Coteau grid will, at some point, be taken over by a new governing structure. All non-infrastructural tasks associated with HSE II were either cancelled or did not deliver the expected results. In this way, HSE II served more to demonstrate what should not be replicated rather than as a model to build on.

Lessons Learned

53. Eight lessons were noted:

Lesson Learned #1: Price of electricity must be pegged at sustainable levels from the outset.

Lesson Learned #2: Must be an inflationary mechanism, as with everything in Haiti.

Lesson Learned #3: Electric cooperatives in Haiti will likely fail. Privatized, social enterprise system is preferable.

Lesson Learned #4: Managing entities should focus on the electric and not become all-purpose charities or branch off into the social sciences and research.

Lesson Learned #5: Similar to the preceding, gender, engagement, organizational training should not be "glued" onto infrastructural projects.

Lesson Learned #6: Similarly, any dependence on petroleum is a proven ingredient for failure, especially with recent costs skyrocketing.

Lesson Learned #7: Local Technology and Expertise is necessary to assure continuity and functional sustainability.

Lesson Learned #8: Big project models are inappropriate for Haiti.

Recommendations

54. Two recommendations are made.

Recommendation #1: CEAC should be dissolved and the grid given over to a private entity, the obvious candidate being EarthSpark.

Recommendation #2: UNEP should put a policy in place whereby infrastructural experts and management focus exclusively on infrastructure and separate team of experts take exclusive responsibility for organization and governance building, education & training, as well as gender components. They should be dedicated specialists and not

entrepreneurial NGOs opportunistically trying to capture funds by virtue of their proximity to the project.

55. Overall, the project receives a Moderately Unsatisfactory (3.11) rating in the terminal evaluation. The respective category project ratings are summarized below in Table 2.

Table 2: Summary of ratings

Criterion	Rating
Strategic Relevance	Highly Satisfactory
Alignment to UNEP MTS, POW and Strategic Priorities	Highly Satisfactory
Alignment to UNEP Donor/GEF/Partner strategic priorities	Highly Satisfactory
Relevance to global, regional, sub-regional and national environmental priorities	Highly Satisfactory
Complementarity with existing interventions/ Coherence	Satisfactory
Quality of Project Design	Moderately Unsatisfactory
Nature of External Context	Unfavourable
Effectiveness	Moderately Unsatisfactory
Availability of outputs	Moderately Satisfactory
Achievement of project outcomes	Moderately Unsatisfactory
Likelihood of impact	Moderately Unlikely
Financial Management	Moderately Unsatisfactory
Adherence to UNEP's financial policies and procedures	Unsatisfactory
Completeness of project financial information	Unsatisfactory
Communication between finance and project management staff	Satisfactory
Efficiency	Moderately Satisfactory
Monitoring and Reporting	Moderately Unsatisfactory
Monitoring design and budgeting	Unsatisfactory
Monitoring of project implementation	Unsatisfactory
Project reporting	Moderately Unsatisfactory
Sustainability	Unlikely
Socio-Political Sustainability	Moderately Likely
Financial Sustainability	Unlikely
Sustainability of Institutional Framework	Unlikely
Factors Affecting Performance	Moderately Unsatisfactory
Preparation and readiness	Moderately Satisfactory
Quality of project management and supervision	Moderately Satisfactory
- UNEP	Moderately Satisfactory
- Implementing Partner (UNOPS)	Moderately Satisfactory
Stakeholders' participation and cooperation	Moderately Satisfactory
Responsiveness to human rights and gender equality	Unsatisfactory

Criterion	Rating
Environmental and social safeguards	Moderately Satisfactory
Country ownership and driven-ness	Unsatisfactory
Communication and public awareness	Unsatisfactory
Overall Project Performance Rating (3.11)	Moderately Unsatisfactory

INTRODUCTION

56. The Haiti Sustainable Energy II (HSE II) was a 4.5 year electrification project implemented from December 2016 to June 2021. It had an initial budget of USD 4,618,93 and final expenditures of USD 5,268,488. It was the second of two projects (HSE I and HSE II).
57. The scope of the project was supporting reconstruction of 2 damaged mini-grids and 12 damaged health centre PV units, building the economic, technical and managerial sustainability of the CEAC mini-grid and cooperative, and building national technical capacity in sustainable energy technology.
58. The specific target area was a 28 km strip of coast located in three contiguous rural communes/counties (pop ~60,000) in the Department of the South, Haiti. Specifically, the counties were Roche-à-Bateaux (pop ~18,000), Côteaux (pop ~21,000), Port-à-Piment (pop ~19,000).
59. The project corresponded with the UNEP Medium-Term Strategy of 2014 – 2017⁸, described under the Climate Change Strategic Focus Expected Accomplishment (2b): “The capacity of countries to use natural resource and environmental management to support sustainable recovery from natural and man-made disasters is improved.” The project supported Strategic Development goals: SDG 7. Ensure access to affordable, reliable, sustainable and modern energy for all Target 7.1: By 2030, ensure universal access to affordable, reliable and modern energy services. Target 7.2: By 2030, increase substantially the share of renewable energy in the global energy mix.
60. The project was implemented by UNEP Policy and Programme Division and Crisis Management Branch, and the Disasters and Conflicts Subprogramme, specifically under the Country Programme in Haiti. Part of UNEP’s overall goals in the South of Haiti are to, 1) Generate practical and lasting benefits for the South Department, 2) Demonstrate and seed fund solutions suitable for replication at a national scale.
61. United Nations Office for Project Services (UNOPS) performed as both a co-executing and co-implementing partner. Other partners were Cooperative Electrique de l’Arrondissement des Côteaux (CEAC), EarthSpark, and Solar Electric Light Fund (SELF). The primary funding agency was the Norway Ministry of Foreign Affairs were (NFMA). Additional support came from IDB (Inter-American Development Bank), and USAID (United States Agency for International Development).
62. With the approval of the donor, the project management model for HSE II was radically changed in 2017. A modified strategy was formalized under the new entity UN Electric (see paragraph 121 and 122). The UN Electric agreement was signed in May 2018. The existing UNEP - local NGO partnerships were cancelled. A UNEP-UNOPS partnership was developed where UNEP took the role of project architect and technical lead and UNOPS led implementation, including the management of activities, project staff and partners at the local level.

⁸ https://wedocs.unep.org/bitstream/handle/20.500.11822/7670/-UNEP_Medium_Term_Strategy_2014-2017-2015MTS_2014-2017.pdf;

63. The project had no baseline data. Not even the PUE (Productive Use of Energy) and Gender Baseline surveys were conducted. There was no mid-term evaluation. All monitoring and evaluation was internal to UNEP and UNOPS.
64. The purpose of this evaluation is twofold: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote operational improvement, learning and knowledge sharing through results and lessons learned among UNEP. The audience includes the Haitian Government, UNEP, UNOPS, and those organizations and professionals engaged in working on future energy sector projects in Haiti.

EVALUATION METHODS

A. UNEP's evaluation approach

Definitions of evaluation criteria

65. In line with the UNEP Evaluation Policy, the UNEP Programme Manual and the Guidelines for GEF (Global Environment Facility) Agencies in Conducting Terminal Evaluations, this evaluation has been carried out using a set of 9 commonly applied evaluation criteria which include: (1) Strategic Relevance, (2) Quality of Project Design, (3) Nature of External Context, (4) Effectiveness (incl. availability of outputs; achievement of outcomes and likelihood of impact), (5) Financial Management, (6) Efficiency, (7) Monitoring and Reporting, (8) Sustainability and (9) Factors Affecting Project Performance and Cross-Cutting Issues (see Annex 6: Evaluation Framework/Matrix for more details on each evaluation criterion).
66. Most evaluation criteria are rated on a six-point scale as follows: Highly Satisfactory (HS); Satisfactory (S); Moderately Satisfactory (MS); Moderately Unsatisfactory (MU); Unsatisfactory (U); Highly Unsatisfactory (HU). Sustainability and Likelihood of Impact are rated from Highly Likely (HL) down to Highly Unlikely (HU) and Nature of External Context is rated from Highly Favourable (HF) to Highly Unfavourable (HU). The ratings against each criterion are 'weighted' to derive the Overall Project Performance Rating. The greatest weight is placed on the achievement of outcomes, followed by dimensions of sustainability.

Matrix of ratings levels for each criterion

67. The UNEP Evaluation Office has developed detailed descriptions of the main elements required to be demonstrated at each level (i.e. Highly Satisfactory to Highly Unsatisfactory) for each evaluation criterion. The evaluation consultant has considered all the evidence gathered during the evaluation in relation to this matrix in order to generate evaluation criteria performance ratings.

Strategic evaluation questions

68. In addition to the 9 evaluation criteria outlined above, the evaluation addresses a number of strategic questions that were formulated in the Terms of Reference. These questions were posed by the UNEP Evaluation Office in conjunction with members of the steering committee and the consultant.
 - What were the achievements of HSE I and how did HSE II learn from HSE I, especially in terms of hurricane risks for the technical equipment?
 - How beneficial the UN Electric agreement was for the project implementation? What were the challenges inherent to the shift to the UN Electric agreement?

- Did the changes that UNEP and the donor undergone over the project duration impact the project implementation? And How?
- What changes were made to adapt to the effects of COVID-19 and how might any changes affect the project’s performance?

69. A summary of responses to these questions is given in Section 6. Conclusions.

B. Evaluation Process

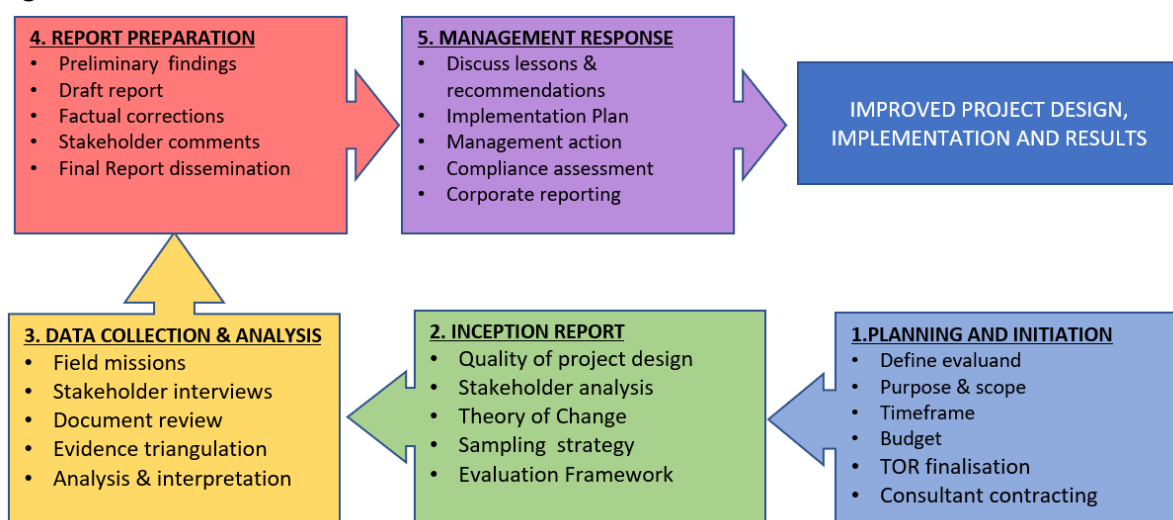
70. The evaluation involved consulting with project team members, partners and beneficiaries at several stages throughout the process. Central to the evaluation was the analysis (and reconstruction) of the project’s Theory of Change. Consultations were held during the evaluation inception phase to arrive at a nuanced understanding of how the project intended to drive change and what contributing conditions (‘assumptions’ and ‘drivers’) would need to be in place to support such change. The (reconstructed) Theory of Change, supported by a graphic representation and narrative discussion of the causal pathways, was discussed further with respondents during the data collection phase, and refined as appropriate. The final iteration of the Theory of Change is presented in this final evaluation report and has been used throughout the evaluation process.

71. Throughout this evaluation process and in the compilation of the Final Evaluation Report efforts have been made to represent the views of both mainstream and more marginalised groups. Data were collected with respect for ethics and human rights issues. All pictures were taken, and other information gathered after prior informed consent from people, all discussions remained anonymous and all information was collected according to relevant UNEG guidelines and UN standards of conduct.

72.

73. Figure 1 below presents the Evaluation Process and its participatory approach.

Figure 1: UNEP Evaluation Process



C. Data Collection

74. The findings of the terminal evaluation are largely based on (i) a desk review of key project documents at design and implementation stage, (ii) remote interviews with key

- stakeholders, (iii) seven days visiting sites and interviewing implementors and beneficiaries (iv) a 200+ household survey electric cooperative members vs. non-members.
75. Desk Review (secondary data). The consultant reviewed key project documents at design and implementation stage. These included general background documentation, documented studies, plans, reports, budgets, publications as well as the project website and online tool(s). Additional desktop research was also done to develop an understanding of the history of electrification in Haiti, the in-country context, and to confirm the strategic relevance of this project. A full list of the documentation that were reviewed, is presented in **Error! Reference source not found.**
 76. Semi-structured interviews of stakeholders (primary data). A list of stakeholders to be interviewed was prepared at the inception stage with a preliminary indication of names based on steering committee members and stakeholder lists. All stakeholder groups, listed in the Project Document as members of the project advisory and steering committee, were initially⁹ identified for interviews.
 77. Interview questions were structured according to the evaluation framework. Interviews with members of implementing agencies were a series of open-ended questions beginning a description of the organization's involvement in the project, achievements, challenges, and ending with lessons learned and recommendations for future projects.
 78. Twenty-four face to face interviews, and seven remote interviews were completed with individuals (26 males and 6 females) representing over 18 organizations.¹⁰ Two stakeholders did not respond to multiple requests for an interview (see Annex 2).
 79. The interviews were slightly complicated by time lapse. Representatives for some stakeholders were no longer associated with the organization. Those with the most intimate knowledge, however, were available, particularly UNOPS, UNEP, EarthSpark and CEAC. Interviews were conducted between February and June 2022.
 80. The field visit was conducted from May 1st to May 8th. During this time the consultant with staff at seven hospitals, CEAC staff, representatives of the local government, former EDH staff, and more than 20 entrepreneurs. skilled workers and other beneficiaries of the Coteau grid. Entrepreneurs included two male welders, three male carpenters, six female store owners, five women who owned freezers and sold cold beverages out of their home, two female and one male hotel employee/cooks, three female restaurant owners, one male owner of a video cine.
 81. A survey was conducted between June 16th to June 23rd. The sampling strategy was a 21 cluster, systematic random survey of 211 households, which ended up being 106 CEAC member households and 105 non-CEAC households. The unit of analysis was the household. The survey was conducted by two male and two female surveyors, all university education Haitian nationals. The questionnaire was programmed into ODK and loaded onto Samsung Galaxy tablets (see Annex 7 for full report).

⁹ Not all stakeholders who were identified at design stage as members of the project governance structures, did participate. The list were therefore reduced at the start of the evaluation to correspond with actual membership.

¹⁰ CEAC, EarthSpark, ANARSE, UNOPS, UNEP, Coteau Hospital, Port a Piment Hospital, Damassin Clinic, Coteaux Hospital, Chardonier Hospital, MSF, SELF, EDH, Mairie in Okay, CASEC Coteaux, Coteau ASEC, CPCS

Table 3: Sample size by Commune & Control vs. Treatment*

Beneficiary	Côteaux	Port-à-Piment	Roche-à-Bateaux	Total
Connected to CEAC grid	44	37	25	106
Not connected	45	35	25	105
Total	89	72	50	211

** There were 22 empty residences and one refusal. All were replaced by the next occupied home*

Table 4: Type of respondents

Beneficiary	Household Head		Other		Total
	Male	Female	Male	Female	
Connected to CEAC grid	40	39	6	21	106
Not connected	30	53	6	16	105
Total	70	92	12	37	211

82. The objectives of what was called the CEAC Household Beneficiary Survey was to understand the impact of the CEAC electricity on household use of appliances, income and relative wealth. It was also intended to explore two counterfactuals: a) what if there were no grid and hospital PV systems, b) what if the project had not supported provision of rechargeable and solar energy products. Put another way, in the absence of project activities, in what alternative ways would beneficiaries have satisfied energy demands, if at all, and what would be the impact of these alternative scenarios.
83. Household head was the target respondent, and fully 76 percent of respondents were the self-reported household head. In cases where the household head was not available, surveys interviewed any available household member who 18 years or older and said they could respond competently to questions about the person they considered to be the head of the household, about household economic activities, and about the household use of electricity. Sixty-one percent of respondents were female and the distribution of female vs. male respondents was approximately equal across all three counties and both treatment and control groups. The surveyors encountered only one 1 refusal.
84. Questions asked of CEAC household respondents verified connectivity, service, participation in CEAC as well as the cooperative operating protocol and membership participation. Other areas of interest will be use of electricity, impact on living standard and activity (before and after grad), assessment of living standards by household profile and assets. Willingness and capacity to pay higher rates. And finally, recommendations.
85. Questions asked of respondents from non CEAC households evaluated the counterfactual: while CEAC households have been connected to the grid, what has happened to those households not connected to the grid. This means comparable living standard questions and alternative energy strategies, i.e. ownership or use of or access to solar panels, rechargers, or generators. Also included will be questions that evaluate benefits from the proximity to the grid, perceptions of the CEAC grid, interest in connecting and finally recommendations.
86. A summary of survey results is included in ANNEX 7.

Table 5: Respondents' Sample

Stakeholder category		No. of stakeholders interviewed	Comment
Co-Executing Agencies/PMU		4 males	UNEP and UNOPS personnel, only three of whom were directly involved in the project
Implementing Partners		4 males 1 female	CEAC, EarthSpark, SELF. Engineers and project personnel first interviewed during field visit.
Co-Funders		3 males	IDB energy team. Interviewed remotely.
National Government		2 males	ANARSE. Both respondents were in place at the time of HSE II, but participated little because of weak government, political upheavals, and security issues.
Local Government.		4 males	Interviewed 4 local government officials during field visit. They have little to do with the project. Nothing to say other than within context of membership in CEAC
EDH (Electric Utility)		1 male	EDH. Former EDH director in the area and current office director in provincial capital of Les Cayes.
Financial Institution		1 male	Director of CPCS (Caisse populaire de la Côte Sud), main credit union in the region and the implementing partner for HSE II loan program.
Hospital/Clinic beneficiaries		5 males 5 females	Briefly interviewed staff at 6 hospital/clinics that were beneficiaries of PV systems.
Direct Beneficiaries	Entrepreneurs	7 males 16 females	Entrepreneurs included two male welders, three male carpenters, six female store owners, five women who owned freezers and sold cold beverages out of their home, two female and one male hotel employee/cooks, three female restaurant owners, one male owner of a video cine.
	Household members	~5 males ~15 females	Consultant randomly visited household living along the grid and spoke to people about the benefits, cost, and problems.
	Survey respondents	82 males 129 females	Households sampled and in which a member was interviewed.
TOTAL		120 males, 166 females	

87. Emphasis was placed on triangulation of data sources, meaning using multiple data sources to arrive at conclusions. Sources include the general report, monitoring and financial reports, interviews, the survey data, and online documents.

D. Limitations and mitigation strategy

88. In fact, the number of implementing partner professionals with detailed knowledge of HSE II are few. Because HSE II was the second phase of a project that began now 10 years ago, in 2012. Moreover, HSE II cancelled the contracts with most national partners. The project involved a small number of agencies and personnel working with these agencies.
89. Stakeholder knowledge was also limited by the fact that CEAC was intended to engage local stakeholders, something they largely failed to do. COVID restrictions and then political instability, skyrocketing crime and gang warfare in Port-au-Prince further limited participation to a few groups and individuals.

90. Fortunately, in terms of the evaluation, there was little need for input from people or organizations outside of the grid area and outside the core UNEP-UNOPS management team. Cancelled contracts meant that except for remote contractors—who knew little about the project anyway—most of the main partners and all the beneficiaries were located and available in the activity area.
91. A limitation regarding input from beneficiaries was the remoteness of the area and the difficulty contacting national participants. The poor security situation in Haiti has limited travel in the country. Many professionals and functionaries—including the president of CEAC, the former director, and senators from the region—have all left for the US and Canada.
92. Regarding beneficiaries themselves, a major limitation was CEAC. The cooperative would not share—or does not have—lists and contact information for its members. There is also virtually no online information system or local social media through which the consultant could effectively identify and contact beneficiaries of the CEAC grid. This meant that even though there is cell phone and internet service in the area, the only way to reach beneficiaries was by going to their homes.

THE PROJECT

A. Context

93. Chronic political turmoil has characterized Haiti for most of the past forty years. From 1981 to 1986, violent popular resistance to the Jean-Claude Duvalier dictatorship rocked the country with protests, riots and national strikes. The dictatorship fell in 1986 and in the ensuing eight years were seven different regimes, two failed elections, two coups, and three years of military dictatorship that led to a UN military mission (UNMIH 1994-1996), two years of a foreign-assistance embargo (2002-2004), another coup (2004), another UN military mission (MINUSTAH 2004-2017), and then three years when gangs terrorized the population with armed robberies, home invasions, and kidnappings (2004 and 2007). In 2009, political stability seemed to be within grasp, in collaboration, with the Haitian government, the UN and USAID began orchestrating a massive, highly publicized investment strategy. Haiti's elite entrepreneurs, diaspora business people, and US billionaire social-investors were all on board. And then, on the 12th of January 2010, just as final touches were being put on the plan, an earthquake slammed the capital city of Port-au-Prince. Seven percent of all houses and buildings were immediately destroyed. Another 13 percent were damaged beyond repair.¹¹ Typical to the disorder that prevailed in Haiti, no one knows for sure how many people were killed, somewhere between 50,000 and 316,000.¹² Summarizing the impact of this political instability, since 2006, when Fund for Peace first began calculating its Fragile States Index - an indicator comprising activities such as state services, security apparatus, and human rights - Haiti has consistently ranked among the 13 most debilitated countries in the world, ranking among Somalia, South Sudan, Afghanistan and Chad.
94. It is not known how many people in Haiti have electric service, but at the time of the 2010 earthquake—two years before the first of HSE project began - best estimates were

¹¹ Miyamoto, H. Kit Ph.D., S.E., and Amir Gilani, Ph.D., S.E 2011 Haiti Earthquake Structural Debris Assessment Based on MTPTC Damage and USAID Repair Assessments. Miyamoto International.

¹² See Schwartz, Timothy, 2017. The Great Haiti Humanitarian Aid Swindle. Chapter Six. Create Space.

12-25 percent of the ~ 2 million households in the country. At an estimated 36 kWh consumption per person per year, Haiti has one of the lowest rates of electrification in the world.¹³

95. The vast majority of those who are connected to a grid are in the metropolitan area of the capital city Port-au-Prince, where lives 1/3rd of Haiti population. Service was erratic. Even with 200 MW of generating capacity to meet a 157MW demand, most households in metropolitan received less than 10 hours of service per day. Some ~30 percent of power came from the US financed Lake Pelige hydroelectric dam completed in 1956. The rest came from three PPA suppliers with a combined capacity of ~135 MW.¹⁴
96. Since 1971 until 2016, all aspects of generation, distribution, and sale of electricity in Haiti were under monopoly control of the state-owned entity, Electricité d’Haiti (EDH). EDH was ostensibly overseen by the “Energy Cell” inside Ministry of Public Works, Transport and Communications in Haiti (MTPTC). EDH was/is poorly run and a constant burden on the State, with annual revenue from customers estimated at USD 50 million, EDH depended on USD 250-300 million of government subsidies per year. A 2018 report by Boston University’s Institute of Sustainable Energy summed up EDH performance as follows:¹⁵

Outside observers generally consider EDH to be in very poor financial and operational condition, beset by management and staff that is corrupt and incompetent, operating under a political and governance umbrella of high ambiguity. The recent Haiti Priorise effort undertaken by the Copenhagen Consensus Center (with financial support from the Government of Canada) concludes that, “the World Bank, IDB and US AID have failed in all attempts to improve [i.e., reform] the power sector” in Haiti.” [Taken from Boston University, Institute of Sustainable Energy (ISE) quoting March 2018. NRECA CCEP Final Report, 2015.]¹⁶

97. Outside Port-au-Prince electricity was and still is far scarcer. At the time of the 2010 Haiti earthquake, there was no national electric grid but rather some 10 regional grids focusing on the Haiti’s main cities. Each had from 2 to 20 MW diesel generators. There were only 30 village-level grids. Totalled, provincial urban and town grids provided less than 500 kW of generating capacity to meet an estimated demand of 550 MW. With the exception of a few NGO funded projects and those households fortunate enough to be located next to one of the country’s rare powerlines that they can illegally tap into, there is essentially no rural electrification at all.^{17 18}
98. The South of Haiti where HSE II was implemented, had/has exceptional poor electric service even by Haiti standards. The main city in the Department is Les Cayes where a 7.6 MW available capacity diesel generator serves 21,000 customers. According to studies conducted under the auspices of UNEP in 2012, the grid was poorly operated, unstable, had frequent blackouts, and the power quality was poor. In its assessment of

¹³ See World Development Indicators <https://datacatalog.worldbank.org/search/dataset/0037712>

¹⁴ Ibid

¹⁵ Ibid

¹⁶ Ibid

¹⁷ Ibid

¹⁸ International Trade Administration. 2021-09-25 Haiti - Country Commercial Guide. <https://www.trade.gov/country-commercial-guides/haiti-energy>

the grid and prospects of expanding it, UNEP also noted that, as elsewhere, EDH South was de facto bankrupt and functioned by virtue of government subsidy.¹⁹

99. In view of the preceding, there was an enormous demand for projects like HSE. In December 2011, the Government of Haiti recognized this demand in a Rural Electrification Strategy Paper, and breaking with its traditional emphasis on a national grid called for rural mini-grids from renewable energy.
100. HSE II was preceded by a first project phase, HSE I, a USD 7.8 million project originally scheduled to begin in September 2012 and run until December 2015. With one extension, it in fact ran until December 2016.
101. The main goals of HSE I was to generate practical and lasting benefits for the South Department, but also an exploration and project model for replication at a national scale. HSE I had four main components:²⁰
 - Renewable energy education and governance
 - Household electricity for the South Department
 - Haiti rural electricity cooperative:
 - Grid renewables for the South Department
102. See Table 6 for a summary of HSE I accomplishments.

Table 6: HSE I Accomplishments

1. Renewable energy education and governance: Delivered energy policy support and building the capacity of the Government of Haiti and other key Haitian energy sector organizations in the field of renewable energy.
2. Household electricity for the South Department: Developed retail energy products and rental sales of solar-powered lamps, lanterns and home systems.
3. Haiti minigrids and rural electricity cooperative: Constructed a mini-grid with over 50km of lines and the potential for 2500 connections. Developed a rural electrical cooperative to sustainably operate the mini-grid.
4. Health facility electricity: Facilitated installation of solar PV-diesel hybrid power supplies in 12 health clinics and hospitals in the South Department.
5. Grid renewables: Project development studies for renewable energy power generation for the national utility (EDH CSA)-managed Les Cayes regional grid in the South Department. An early focus on run-of river-hydropower but also evaluating the potential for wind, biomass and solar.
6. Sustainable cooking and heating: Investment in improved cookstoves and feasibility assessments for alternative fuels such as agricultural waste.
7. Participation in numerous (10+) Government of Haiti owned policy workshops, conferences and task teams. The primary role of UN Environment staff in these events and teams was the provision of technical oriented advice and policy support.
8. Co-financing and technically supporting the creation of a new interim Haitian government entity for energy sector governance.

¹⁹ Referenced on page 25 of the HSE II Design Document.

²⁰ See HSE I Final Report. 2017. Andrew Morton.

9. Development and submission of a technical policy support paper on the potential for grid- connected renewable energy in Haiti.
10. Sponsoring the Haiti government GIS unit (CNIGS) to provide GIS services to the UN Environment Haiti team.
11. Sponsoring the Haiti Education and Leadership Program (HELP), a Haitian NGO to provide new graduates in electrical engineering to support the government and work in UN Environment energy project teams.

103. HSE I was considered a success story. The line construction began in November 2014 and the system was energized in the Coteaux commune/county on September 10, 2015, Roche-a-Bateau commune/county on September 18, 2015 and Port-a-Piment commune/county on October 18, 2015. The main accomplishment and 80 percent of the budget from the project was a power plant consisting of 140kWp of PV panels, a 120 kW and 250kW 1generators powering a 28 km of primary line and 26 km of secondary line delivering electricity to 1,008 households.
104. On October 4th 2016, two months before HSE I was to be completed, category 4 Hurricane Matthew made a direct hit on the activity area. Seventy percent of the PV panels, 25 percent of the grid itself, and more than half the homes of beneficiaries were destroyed.²¹ Consequently, two of the original total of four HSE II main activities became, 1) rebuilding and upgrading two partially destroyed hybrid electric mini grids, and 2) replacing destroyed PV systems in 12 GoH regional hospitals. The other two activities were, 3) promoting a battery rental enterprise, and 4) promoting energy policy and technical education in sustainable energy. The latter activity was cancelled. Not specified in the project outline is a fifth priority, 5) Making the cooperative that manages the grid sustainable.
105. The project occurred in the context of significant political instability, civil unrest, and meteoric increase in criminal gang activity in the capital city of Port-au-Prince, upon which the south depends for access to technologies, technicians, fuel, and administrative support. These problems had already begun before the onset of the project in 2016, but increased in 2018 with “peyi lok”, a three month period of complete paralysis of commerce and government. Since 2019 Haiti has been credited as that country with highest rate of kidnapping in the world. Eighty percent of the capital city of Port-au-Prince is under the control of gangs and militias that oppose the central government.²² On July 7th 2021, then president Jovenel Moise was assassinated. Many other international projects in Haiti have closed in the past 3 years. Some government ministries do not function.

²¹ Condition Assessment of the Service Area and the Electricity System at Coopérative Electrique de l'Arrondissement des Coteaux (CEAC) Oct 24, 2016

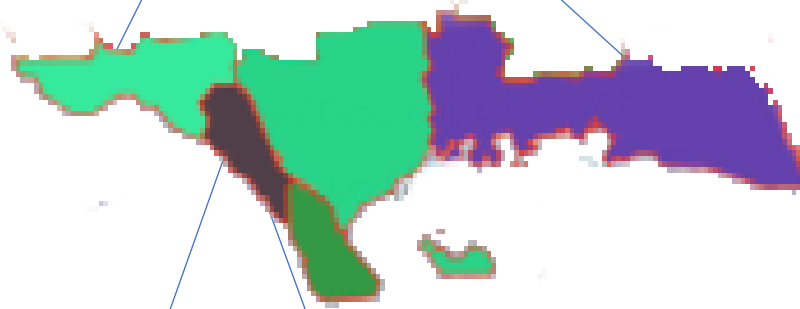
²² Washington Post October 9, 2021. Abductions by the busload: Haitians are being held hostage by a surge in kidnappings By Widlore Mérancourt and Anthony Faiola.

Figure 2: Geographic Summary²³

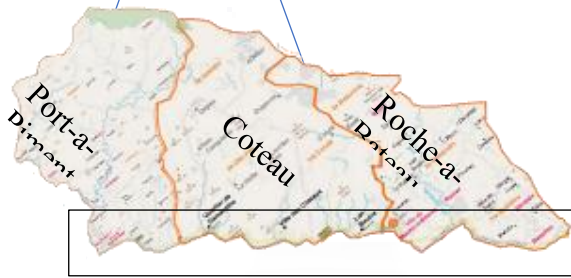
HAITI
 Land 27,750 km²
 Pop 11,637,099
 Urb. 56%
 Median Age: 24 years
 Life Expectancy: 65 years
 Infant Mortality: 48
 Per Capita income: USD 2,962



DEPARTMENT OF SOUTH
 Land 2,654 km²
 Pop ~800,000
 Urb. 23%

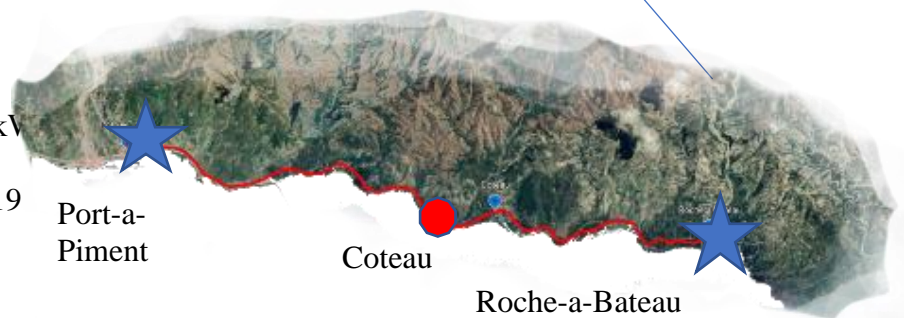


ARRONDISSEMENT COTEAU
 Land 181 km²
 Pop 60,000
 Urb. 32%



COMMUNES
 Roche-à-Bateaux (pop ~18,000)
 Côteaux (pop ~21,000)
 Port-à-Piment (pop ~19,000)

CEAC Power Grid
 Solar 150 kW
 Diesel Generator 400 kW
 Length of Grid 26 km
 Houses connected 2,019



²³ Source of geographic information: <https://www.worldometers.info/world-population/haiti-population/>

B. Results Framework

106. The purpose of all the UNEP investments in energy in the South Department was twofold:

- Generate practical and lasting benefits for the South Department
- Demonstrate and seed fund solutions suitable for replication at a national scale

107. The single project outcome presented in the Project Document was: “PV hybrid units, mini-grids and energy cooperatives are proven self-sustaining solutions for Haiti and embedded in a national rural electrification policy framework.”

108. Because of Hurricane Matthew destruction, the project objectives were refined to the following four topics:

- Health clinic electricity: Post disaster reconstruction and recovery support;
- Les Anglais mini-grid: Post disaster reconstruction and recovery support;
- Coopérative Electrique de l'Arrondissement des Coteaux (CEAC) mini-grid: Post disaster reconstruction and recovery support. Follow on focused longer-term support to CEAC, including expansion of the mini-grid and integration of health clinics. Building the capacity of the cooperative members, board and management is a priority for the CEAC investment. A gender component is integrated into the scope;
- Sustainable Energy Capacity Building and Governance (SE CBG): Technical assistance and capacity building for the Haitian sustainable energy sector, focusing strongly on training and supporting Haitian nationals and national non-governmental, education and private sector organizations.

109. The Prodoc reduced the above four topics to three components, with health clinic electricity and Les Anglais mini-grids topics combined together in the same Reconstruction component, to yield: 1) Reconstruction; 2) Support to CEAC and expansion of grid; and 3) SE CBG.

110. Table 7, below, summarizes the project outcome, outputs and their respective indicators presented in the UNEP Logical Frameworks of the Project Document and its evolution in the 2 Project Revision Documents.

Table 7: Logical Framework

	Project Document (Dec 2016)	Project Revision 1 (Oct 2019)	Project Revision 2 (Dec 2020)
Project Outcome	PV hybrid units, mini-grids and energy cooperatives are proven self-sustaining solutions for Haiti and embedded in a national rural electrification policy framework.	Unchanged	Unchanged
Outcome Indicators	1. The CEAC cooperative passes a UNEP led management and technical capacity assessment review in June 2019 (baseline 0, target 1)	1. Unchanged	1. Unchanged
	2. PV hybrid systems continue to deliver energy to 12 Government of Haiti health	2. Unchanged	2. Unchanged

	Project Document (Dec 2016)	Project Revision 1 (Oct 2019)	Project Revision 2 (Dec 2020)
	clinics 24 months after reconstruction. (baseline 0, target 12)		
	3. The Government of Haiti has developed a national rural electrification strategy by July 2019.(baseline 0 target 1)	3. Indicator deleted	3. Indicator deleted
	4. Gender issues are integrated into the mini-grid reconstruction activities, CEAC microcredit initiatives and SE platform publications and events and 5% of UNEP and co-finance investment is targeted at women headed households. (baseline 0% target 5%)	4. Unchanged	4. Unchanged
			5. CEAC cooperative independently operates the power plant and provides power to its members (baseline "No", Target "Yes")
Project Output 1	Reconstruction: Infrastructure reconstruction works delivered	Unchanged	Reconstruction: Infrastructure reconstruction works delivered to CEAC and other beneficiaries
Output 1 Indicators	# of health clinic PV systems reconstructed (Baseline 0 Target 12)	Unchanged	Unchanged
	# of minigrids repaired (Baseline 0, Target 2)	Unchanged	# of minigrids repaired (Baseline 0, Target 1)
			The full system of CEAC cooperative is installed including power plant, grid and metering (Baseline "No", Target "Yes")
Project Output 2	CEAC CB: Capacity building and technical assistance provided	Unchanged	CEAC CB: Capacity building and technical assistance provided- by the project for operation of CEAC
Output 2 Indicators	NRECA completes 3 more years of on-site technical assistance Q1 2019 (Baseline 3, Target 6)	# UN & partners complete 3 more years of on-site technical assistance Q1 2019 (Baseline 3, Target 6)	Unchanged
	# of CEAC assemblies held	# of CEAC assemblies held (Baseline 2, target 3)	Unchanged
			On the job capacity building programme provided (Baseline 0%, Target 100%)
			# of technicians receiving on the job

	Project Document (Dec 2016)	Project Revision 1 (Oct 2019)	Project Revision 2 (Dec 2020)
			training; (Baseline 0 - Target 12)
Project Output 3	SE CBG: National capacity development, communication and policy products delivered.	SE CBG: National technical assistance and capacity development products delivered	SE CBG: National technical assistance and capacity development products delivered to public authorities
Output 3 Indicators	# SE platform and course developed (baseline 0, target1)	# Rural electrification TA and capacity building events/activities delivered (Baseline 0. Target 3)	# of technical reports handed over to the government; (Baseline 0 – Target 2)
	# national rural electrification strategy launched (baseline 0, target 1)	Indicator deleted	# of technical assistance missions, seminars, training sessions; (Baseline 0. Target 3)
			# of participants including % of women; (Baseline: 0, Target: 60 including 20% women)

111. Under the UN Electric Accord (see paragraph 122 and 123), the project targets were originally restructured as 13 “work packages” (the hospital PV systems were not mentioned because they had been already completed).
112. A 14th and 15th Work Package were added in the September 26, 2019 in the first amendment (Technical Assistance to the MTPTC/Cellule d’Energie and Haiti Mini-grid outreach event).

Table 8: UN Electric Work Packages*

1	Reconstruction support for the Les Anglais mini-grid
2	Reconstruction and expansion of the CEAC distribution grid
3	CEAC metering upgrade
4	CEAC power plant upgrade
5	CEAC PV ground mounting prototype (cancelled)
6	Port Salut UNEP compound energy upgrade (cancelled)
7	CEAC operational loss coverage
8	CEAC capacity building
9	Productive Use of Electricity and Gender
10	National Vocational Capacity Building (cancelled)
11	South Department hydropower Study
12	UN Electric Fund design
13	UN Electric website development
14	Assistance to the MTPTC/Cellule d’Energie (cancelled)
15	Haiti Mini-grid outreach event (cancelled)
*Hospital PV systems were not mentioned because they had been already completed	

113. Cancellations: Work packages 14 and 15 were cancelled due to political instability and GOH non-performance. Work Package 5 was cancelled after an evaluation determined

that new mounts were unnecessary. Work Package 6 was cancelled because a) lease and timing issues for the Port Salut office and b) limited suitable roof space for the UNOPS offices. Work Package 10 was cancelled because of non-performance by the partner HEI and when the Energy team under the Prime Minister—with which HSE I had developed a working relationship—was closed following a government policy change. The first amendment of the UN Electric agreement signed in September 2019 stipulating these cancelations.

C. Stakeholders

114. Elaborating on the Project Document, stakeholders can be broken into five categories: 1) the donors or would-be donors, 2) original implementors, 3) GoH entities, 4) CEAC stakeholders, and 5) capacity building Stakeholders. The following sections elaborate and summarize each of these stakeholder categories.
115. The originally HSE II steering committee was made up of the GoH/MTPTC Energy Cell, NMFA, UNEP, NRECA, and HEI. The committee was replaced at the time of the UN Electric Accord with NMFA, UNEP, and UNOPS.
116. There were no formal community level stakeholder activities because, by definition, CEAC was responsible for communication and management of local stakeholders and beneficiaries.
117. Although not a donor to the project, the WB supports other SE projects in Haiti and was identified in the Project Document as already active and having the mandate to provide long term support to the renewable energy sector and, in the context of an exit strategy, as a likely supporter of any future expansion of the CEAC grid. The WB was also making investments in the sector that paralleled those of HSE II, not least of all in capacity building with the GoH.

Table 9: Donor Stakeholders

Stakeholder	Interest in Project/Motivation	Relation to project implementation
Government of Norway	Long term impact investment, UNEP Haiti core donor	Principal donor for HSE II – oversight role via local representative and visiting missions
IDB	Impact investment: Major donor and project manager for Haiti energy sector. Prior donor to CEAC via SELF. Oversight via local team and visiting missions	Donor-co-financier for CEAC
USAID	Impact investment: Major donor and project manager for Haiti energy sector. Prior donor to CEAC via NRECA	Ongoing donor – the USAID grant is managed by NRECA
NRECA Foundation	Impact investment; NRECA in-house foundation, supporting NRECA operational arms. Passive donor.	Ongoing donor- managed by NRECA
World Bank	Impact Investment: Donor for the Government of Haiti managed SREP and CTF funds – earmarked in part for more mini-grids	No direct role. Proposed as an observer to the Project Steering Committee
Donors who contribute to implementing partners such as EarthSpark, SELF, and associated entities (Donors being private and	Impact investment: Encouraged or discouraged to donate to the Haiti SE sector based on success of the project	These donors are remote and not directly involved in the project. Rather they donate in the spirit of impact investing in renewable energy for the sake of a

institutional contributors to the cited NGOs)		sustainable planet or for advancement o rural Haiti
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Table 10: Implementation team

Stakeholder	Interest in Project/Motivation	Relation to project implementation
UNEP Haiti	Consultant/admin services: Implementation of multiple projects in the CEAC region including this project, under the CSI sustainable development framework.	Project management, including local political issue management. Interlinking this and other projects into the Department scale framework.
UNOPS	Consultant/admin services: UNEP operational support	Project operational support
NRECA	Consultant/admin services: Project implementation	Subproject management and implementation of minigrid expansion and CEAC capacity building.
EarthSpark	Consultant/admin services: Project implementation	Oversight of rebuilding of Les Anglais mini-grid, Gender consultant
National energy and service companies	Consultant/admin services: Eneji Pwop (name of EarthSpark subsidiary, Haitian company)	Made low voltage energy products (lights, chargers...) available on local market, earning money to make business sustainable and provide employments and enabling beneficiaries to more fully utilize electricity.

Table 11: CEAC Stakeholders

Stakeholder	Interest in Project/Motivation	Relation to project implementation
CEAC members	Beneficiaries of the electric services.	Vote on CEAC governance and strategy including board membership
CEAC staff	Paid local team operating the CEAC mini-grid	Grid operation, CEAC membership support and project support
CEAC board	Beneficiaries. 9 volunteers composition (3 per commune) with a formal CEAC governance role – representing all CEAC members	Oversight and support of CEAC. Protection of commune scale interests

Table 12: Government of Haiti Stakeholders

Stakeholder	Interest in Project/Motivation	Relation to project implementation
Government of Haiti Ministry of Public Works. Energy cell	Project GoH counterpart. GoH energy policy development team	CEAC oversight. Communicating lessons learned.
National cooperative governance body	Government agency licensing cooperatives	High level oversight of CEAC governance- compliance (reactive role).
Government of Haiti South Department - Delegate	GoH and national Department level politics and administration. Historical supporter.	Oversight of all UNEP South Department activities. Local coordination. Represent local actors.
Government of Haiti South Dept senators and deputies	Department and commune level politics. Potential supporter or spoilers	Local Departmental national political-support to CEAC.

EDH – National electrical utility	Operates national grid inc. adjacent Les Cayes grid.	Participation in the HEI organized events and contribution to HEI communications.
Ministry of Education	Education promotion and regulation	Certification of any new formal course developed by the subproject.
Government of Haiti Commune Administrations - Maries	Commune level politics and administration. Potential supporters or spoilers.	Local political-administrative support to CEAC.
ASEC & CASEC	Commune and sub-commune level politics de factor more important than higher levels in terms of adjudicating disputes and popular local leadership.	Unknown and not mentioned in Project Documents

Table 13: SE CB Stakeholder

Stakeholder	Interest in Project/Motivation	Relation to project implementation
HEI (Haitian Energy Institute) at UNIQ (University of Quesqueya)	Donor support to be a primary implementer. Purpose of the organization is fully aligned with the purpose of the subproject.	Project management and implementation including data collection, research, reporting, event hosting, training, communications and curriculum development.
HELP	On the job experience. Sponsors students who will work on the project and eventually in the SE industry in Haiti.	Implementation support. Hosts the students and graduates that will contribute to the research and the platform.
UNEP	Work: Fund manager and technical support	UNEP Haiti – project oversight

D. Project implementation structure and partners

118. HSE II funding agencies were NFMA, IDB, and USAID. UNEP was the architect of the project and oversaw implementation. NRECA International was originally intended to provide mentoring to CEAC coop and technical work on the grid, a continuation of their role during HSE1. SELF handled design and procurement and installation of PV systems, batteries & streetlights. EarthSpark’s Haitian subsidiary, Eneji Pwop, procured low voltage energy products (lights, chargers) for resale. University of Quisqueya was scheduled to host the HEI (Haiti Electric Institute) as well as implement and maintain an SE website to act as a national platform for information on new research and developments in the Haitian SE sector.
119. The original steering committee was composed of representatives from GoH/MTPTC Energy Cell, ANARSE, NMFA, UNEP, UNOPS, and HEI.

E. Changes in design during implementation

120. Already apparent under HSE I, the HSE II Project Design Document clearly spelled out the risks in the Haiti context and documented the worsening governance, political and security situation, risk of delays from donors, and risk of partner non-performance. A list of shortcomings that in fact came about included:
- NRECA pulled out of the project in 2017 because of new UN procurement policies that required all materials and technical support to pass through UNOPS.

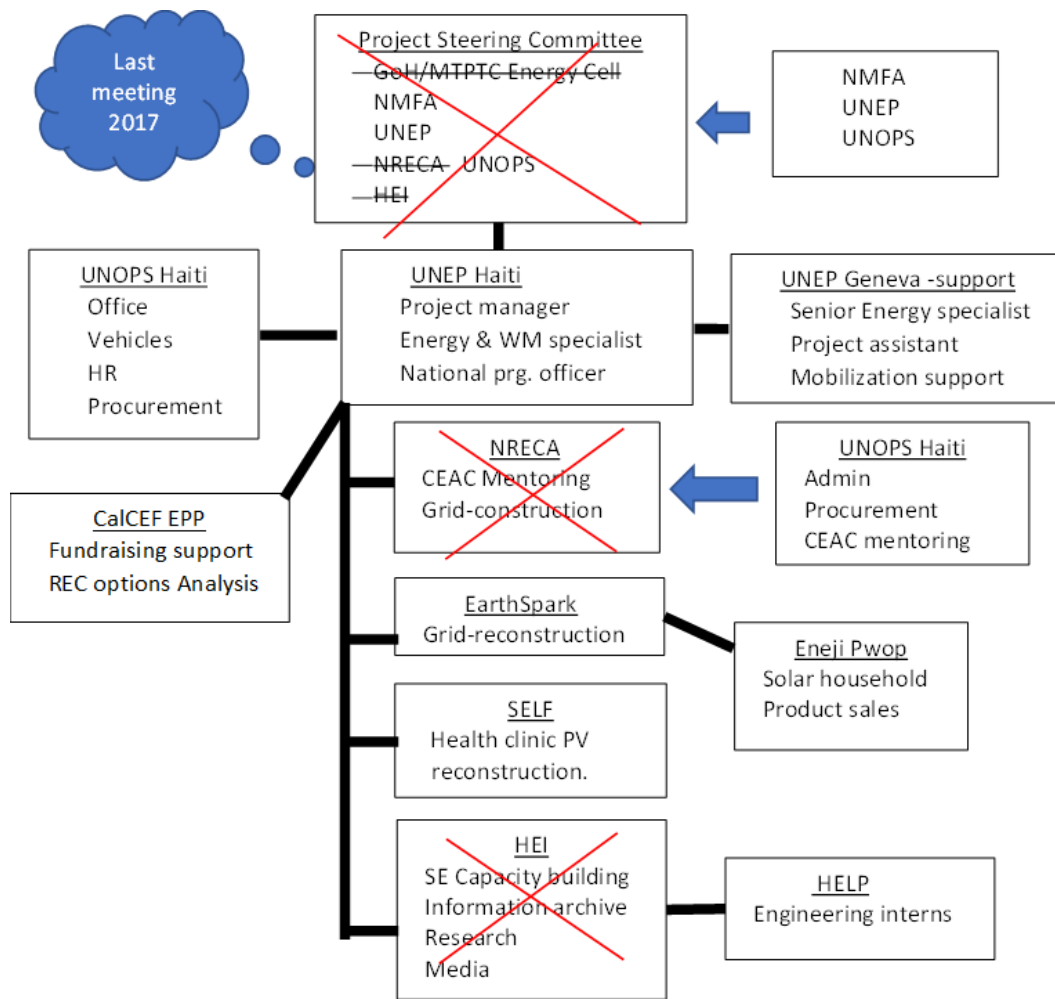
- The mandate for HSE I point of contact with the GOH expired and was not renewed (the Bureau of the Minister Delegate for Energy Security (BMSE) expired).
 - HEI ceased to archive and make information available to the public, they did not maintain a website, and they did not create the promised university graduate SE courses.
 - A 24-month delay in securing the forecast USD 1M in co-financing from the IDB.
 - Uncertainty regarding governance of electricity in Haiti in the wake of the 2014 dissolution of the main government entity and point of contact for sustainable energy policy and education, BMSE (Bureau of the Minister Delegate for Energy Security BMSE).
121. To adapt to the loss of NRECA, beginning in January 2018 under UN Electric, UNOPS took over mentoring CEAC and provided procurement and administration services. EarthSpark continued as the principal on the rebuilding of the Les Anglais grid. SELF managed the procurement and instalment of PV panels on CEAC grid. The steering committee was reduced to the functioning representatives and project directors from UNEP, UNOPS, and the principal donor, NMFA.
- In 2017, UNEP Geneva office self-assessed performance as unsatisfactory, attributing causes to:
 - Increasing instability and insecurity at the national level,
 - Three changes in the UNEP project manager
 - Difficulties in attracting specialist private sector energy equipment providers to work in Haiti, with the UNOPS procurement process failing twice.
 - Demand for specialized PV technicians inherently difficult to recruit and retain in Haiti.
 - Need for large scale engineering equipment procurement and installation, for which UNEP-UN Secretariat procurement processes are unsuitable.
 - The core project design for the CEAC component proving perennially challenging.
 - Co-financing dependencies with IDB—mentioned above—that impacted timely completion of work packages.
 - UNEP Haiti level team and project manager recruitment and performance issues.
122. The project management model for HSE II changed in Q4 2017. An agreement for a modified strategy formalized under the new entity UN Electric was signed in June 2018 and by the end of 2018 UNEP had closed out all HSE II activities managed by local entities.
123. Under the new UN Electric accord, existing UNEP - local NGO partnerships were cancelled. A UNEP-UNOPS partnership was developed under which UNEP took the role of project architect and technical lead and UNOPS formally assume the lead on

implementation, including the management of activities, project staff and partners at the local level.

Table 14: HSE II Participating Organizations and Changes

Participating	Intended Role	Modified Role
NFMA	Main funder USD 3.4 million	Constant
IDB	Contributing funder USD 1.2 million	Constant
USAID	Contributing funder USD 600K in kind donation (mentoring of CEAC), but also unaccounted cash flow subsidies (NRECA) paid some costs allowing CEAC to save money to offset future costs. Exact data not in documentation	NRECA continued to support CEAC through the first year of HSE II (2017)
UNEP	Oversight and implementation	Stepped up implementation
UNOPS	Procurement	Implementor, CEAC Mentor
EarthSpark	Rebuilding of mini-grid, connecting	Constant
NRECA International	Mentoring CEAC coop but withdrew	Dropped out
Solar Electric Light	Design & procure PV system &	Constant
University of	SE CB	Cancelled

Figure 3: Organigram of the Project with key project stakeholders



F. Project financing

124. Based on the documents provided, the planned project budget was USD 4,618,938, as per signed HSE II Agreement. After the second design revision it was USD 5,264,484.79. The actual expenditures as of June 2021 were USD 5,231,730.21. The increase came from 8 percent PRC for UNEP and 3.5 percent IDC UNOPS and a USD 3,909 coordination levy. The total indirect servicing costs at the end of the project were USD 359,861.
125. The principal donor was NMFA, which originally committed to contributing 40 million NOK. The value of NK was pegged at the beginning of the project at 1 USD= 6.06 NOK, which would have equalled USD 6,600,000 over the life of the project. Project documentation notes that actual exchange rate fluctuated. The exchange rate fluctuated over the life of the project from 7.4 to 8.7 NOK per 1 USD. This fluctuating exchange rate causes confusion in trying to understand the budget.
126. Also confusing, budget and expenditure reports under the UN Agency to UN Agency Contribution Agreement (UN Electric), apparently omits year 2017 from UN Electric accounting. This caused great confusion in trying to evaluate total contributions and expenditures.

127. Based on ICFS (interim Certified Financial Report from December 31, 2017, the expenditures for the first year of HSE II (December 2016 - December 2017), was USD 2,319,999.
128. As of March 31, 2021, the project expenditures associated with the UN Electric budget, which began in early January 2018, was USD 3,429,335 in direct funding--as summarized in the UN Electric Agreement.
129. NMFA increased its contribution by USD 350,030 in December 2020 with the third amendment of the UN Electric agreement for a total NMFA contribution of USD 3,779,365.
130. Adding the ICFS from 2017 to that of UN Electric yields a total project expenditures of USD 6,099,364.
131. The above figure ostensibly does include the remaining IDB co-financing.
132. Regarding the funding in the planned budget that was to come from USAID-supported NRECA, the USA NGO/Electric cooperative that participated in HSE I. NRECA officially withdrew from HSE II in the first year because of new UN procurement regulations. NRECA did however carry support over from HSE I through 2017. UNEP considered the support critical in maintaining CEAC operational through the year and was valued in kind at approximately USD 600,0000.
133. With the withdrawal of NRECA the project lost USD 1 million in co-financing from USAID, something made up for but the Inter-American Development Bank (IDB), which co-financed post-hurricane reconstruction activities paying the contribution directly to the sub-contractor and pre-selected NGO SELF (the Solar Electric Light Fund). HSE II Progress Report II of September 2018 incorrectly reported this as USD 1.2m distributed I two disbursements. According to IDB, their total contribution was USD 999,696 given in two disbursements, USD 812,296 in 2019 and USD 187,400 in 2020. This contribution is documented in Amendment1 (Sept 2019) as incorrectly totalling USD 900,000.
134. Final total budget slightly adjusted after the actual instalment and at actual exchange rate was USD 5,303,535.

Table 15: Project Funding Sources

Funding source	Planned funding	% of planned funding	Secured funding²⁴	% of secured funding
<i>All figures as USD</i>				
Cash				
Funds from the Environment Fund	0		0	
Funds from the Regular Budget	0		0	
Extra-budgetary funding (listed per donor):	4,618,938			
NMFA	3,429,335	74%	3,429,335 + 350,030	7%
Sub-total: Cash contributions				82%
In-kind				
Environment Fund staff-post costs	0		0	
Regular Budget staff-post costs	0		0	
Extra-budgetary funding for staff-posts (listed per donor)	0		0	
Sub-total: In-kind contributions	3,429,335		3,779,365	
Co-financing*				

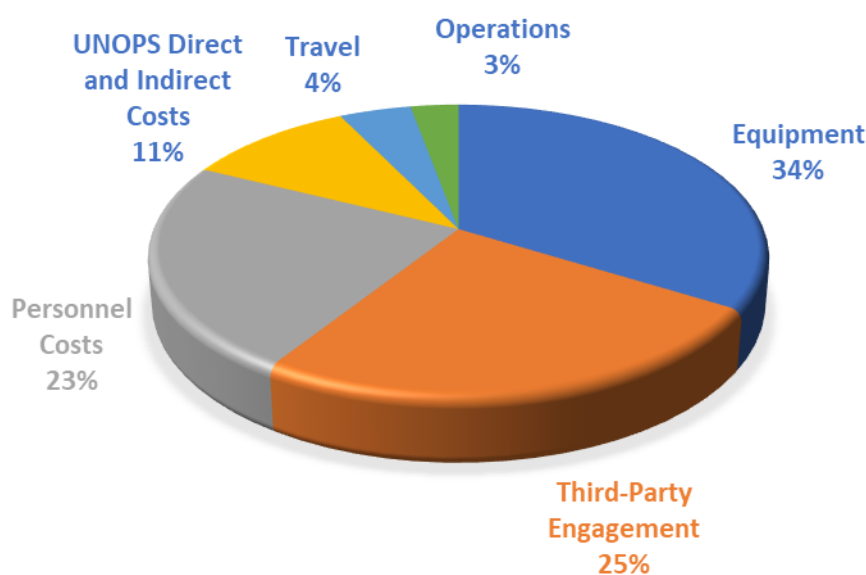
²⁴ Secured funding refers to received funds and does not include funding commitments not yet realised.

Co-financing cash contribution (IDB) ²⁵			999,696 ²⁶	19%
Co-financing in-kind contribution (NRECA)			600,000	11%
NRECA managed USAID co-financing (to NRECA)	1,000,000	16%		
NRECA (in kind)	500,000	8%		
<i>Sub-total: Co-financing contributions</i>	<i>1,500,000</i>	<i>24%</i>	<i>1,599,696</i>	<i>30%</i>
Total	4,929,335		5,379,061	

*Funding from a donor to a partner which is not received into UNEP accounts, but is used by a UNEP partner or collaborating centre to deliver the results in a UNEP – approved project.

135. Confusion also came from the fact that there was no division by component for either planned budget or actual expenditures. The division of the budget was made by administrative categories given in Figure 4.

Figure 4: UN ELECTRIC HAITI II - BUDGET OVERVIEW²⁷



²⁵ The Progress Report II of September 2018 mentioned the following:

- "USAID financed the USA NGO NRECA International for capacity building the electricity cooperative CEAC. This support was particularly critical in maintaining CEAC operational continuity in 2016 and 2017 and is valued in kind at approximately USD 600K".
- "The Inter-American Development Bank has co-financed post-hurricane reconstruction activities, via a pre-selected NGO, the Solar Electric Light Fund. The funding is two phased, USD 200K of funding has been disbursed and USD 1000K is still pending disbursement due to contracting and government issues"

As seen in the in the following footnote, IDB did not disburse funding in way described, nor when and how much.

²⁶ According to IDB 2021 report, output #2.2 in page 26.; the total IDB contributions was USD 999,696 give in two disbursements, USD 812,296 in 2019 and USD 187,400 in 2020. Reference for report is, IDB Programme d'Urgence en Réponse à l'Ouragan Matthew HA-L1130 Accord de Don N°3882/GR-HA Rapport d'Achèvement de Projet (PCR)

²⁷ From the document: 2019-02-01 Budget UN Electric (commitments and projections)_GitaEBVL

THEORY OF CHANGE AT EVALUATION

136. The Project Document provided two Theory of Changes (TOC) that elaborated on two of the three output components in the logical framework. Specifically, they concerned, 1) management of the cooperative, and 2) national capacity building. The original infrastructural component was left out of the TOCs. No Results Framework or Logic Framework was included in the UN Electric project documents.
137. The two TOC confused the expected accomplishments of the project. Most of the original result statements were not in line with UNEP results definition.
138. Under the UN Electric Accord, the project targets were restructured as 13 “work packages” (the hospital PV systems were not mentioned because they had been already completed). Work Packages 5, 6 and 10 were cancelled during project implementation. The first amendment of the UN Electric agreement signed in September 2019 stipulated these cancelations. A 14th and 15th Work Package was added in this first amendment (Technical Assistance to the MTPTC/Cellule d’Energie and lessons learned). It too was cancelled due to political instability. The Work Packages are presented in Table 8: UN Electric Work Packages*.
139. In order to categorize the work packages and provide an analytic consistency for a reformulated TOC, the evaluator proposed and presented to the evaluation team a restructuring of HSE II into the three following components:²⁸
- a) Infrastructure: all infrastructural activities and outputs, including clinic PV units, both grids, and the utilization of those products.²⁹
 - b) CEAC Capacity Building and Technical Assistance: anything to do with function of the CEAC cooperative, such as capacity building, cash advances, and administrative assistance.
 - c) National Capacity Development, Communication and Policy Products: anything to do with non-CEAC training, education, communication and dissemination of information, such as website, courses, and promotion of research, and all support given at the national and governmental level.
140. Table 16, below, explains the reformulating of categories, actual delivery and/or use of the output to bring them in line with UNEP evaluation standards.

²⁸ The ‘restructured’ components are essentially identical to original categories in the original Project Document Logical Framework outputs

²⁹ Note that the project supported the reconstruction of two grids: the CEAC grid in the commune of Coteaux and another grid in the neighbouring commune of Les Anglais. The Les Anglais grid was supported with a USD 200,000 grant to EarthSpark. The project did not participate in any other aspect of supporting, monitoring or assisting with that grid.

Table 16: Justification for Reformulation of Results Statements

Source	Original formulation	Formulation for Reconstructed ToC at Evaluation (RTOC)	Justification for Reformulation
LONG TERM IMPACT			
Logical Framework	N/A	Impact: Better access to reliable and sustainable electricity and efficient use of electricity in Haiti	The Goals presented in the two TOC are not an impact. The CEAC TOC goal is rather an output and the CB TOC goal has been integrated in IS3.
CEAC TOC	Goal: CEAC is fully self-sustained and has 2500 metered connections		
CB TOC	Goal: National SE market growth supported by a capable national SE workforce		
INTERMEDIATE STATES			
Logical Framework	N/A	Infrastructure – IS 1: Benefits for the beneficiaries are proven and HSE II model is replicated in other departments in Haiti.	
CEAC TOC	N/A	CEAC – IS 2: Fully self-sustained cooperative, grid operational, 24/7 electric to cooperative members, 2,500 metered connections	
CB TOC	More experienced and empowered national SE workforce Better informed policies and projects on reported themes Better qualified national SE workforce	National Capacity Development – IS 3: National SE market growth supported by a capable national SE workforce, & GoH officials independently sponsoring new SE conscient policies and programs.	All the original Intermediate States are not in line with UNEP result definition of an Intermediate State. Besides, they are redundant, i.e. “more experience” is the same as “better qualified” which is the same as “better informed”. So put under one Intermediate State.
PROJECT OUTCOMES			
Logical Framework	PV hybrid units, mini-grids and energy cooperatives are proven self-sustaining solutions for Haiti and embedded in a national rural electrification policy framework.	Dropped	Considered in long term impact (“national rural electrification policy framework”), IS 2 and IS 3
CEAC TOC	1000 projected extra connections & more revenue		All these original outcomes are arguably “outputs”. Reformulated to consider a behaviour change.

Source	Original formulation	Formulation for Reconstructed ToC at Evaluation (RTOC)	Justification for Reformulation
	8kW of daytime load, 2000 off grid beneficiaries & more revenue for CEAC	Infrastructure – Outcome 1: Purchase and use of electric devices by beneficiary households and clinics	For example, if we add the actual delivery/reception of electricity to the outputs, then we have a complete output (see outputs below), and then the outcome of these outputs can be redefined, as here done, to be that beneficiaries of the electricity purchase appliances and use the electricity. And then the intermediate states are related to what actually happens because people purchase appliances, as well as CEAC participating in training and using cash as intended.
	Local health benefits extended for 3 years		
	Five clinics have a sustainable power solution. CEAC has another 20kW of PV capacity		
	A capable and stable CEAC board	CEAC – Outcome 2: Effective governance, staff & membership understand roles, transparency, representative elections, impartial sustainable loan program for members, liquidity	The 3 original outcomes are combined into one outcome to avoid redundancy.
	A capable CEAC staff team		
	CEAC remains solvent until 2020 break-even		
	Appropriate national rural electrification policies	Integrated in National Capacity Development – Outcome 3	This was originally a CEAC TOC outcome associated with a “policy support papers” output related to a GoH technical assistance activity. But the policy support papers are better classified under the National Capacity Development Component.
CB TOC	Improved SE knowledge sharing and retention	National Capacity Development – Outcome 3: Technical assistance to the GoH and new knowledge shared are implemented in appropriate national rural electrification policies	The 3 original outcomes presented in the CB TOC are outputs. They are combined here and integrated into one outcome which reflects appropriation of the technical assistance and knowledge shared.
	300+ trained and informed national SE practitioners		
	A new Haitian post graduate certificate course in SE		
OUTPUTS			
Logical Framework	Reconstruction: Infrastructure reconstruction works delivered to CEAC and other beneficiaries	Infrastructure – Output 1.1: Mini-grids repaired & hshld connections made, electricity being delivered	Changed to capture both repairs and expansion

Source	Original formulation	Formulation for Reconstructed ToC at Evaluation (RTOC)	Justification for Reformulation
	CEAC CB: Capacity building and technical assistance provided- by the project for operation of CEAC	CEAC – Output 2.1: CEAC members and staff are trained, including gender awareness in context of electricity.	Simplified by deduction. Capacity building and Technical must mean training. If not, then exactly what is meant is not clear. Gender awareness and training was added in Prodoc revisions.
	SE CBG: National technical assistance and capacity development products delivered to public authorities	Dropped	Included in National Capacity Development – Output 1 and 2
CEAC TOC	Cash in bank	CEAC – Output 2.2: Cash in bank and used for operations and credit in context of gender equitable strategy	Specification that the cash is actually used. Gender awareness and training was added in Prodoc revisions.
	15km of new MV and LV distribution	Infrastructure – Output 1.2: Fifteen km of new MV and LV distribution grid, new hshld households made, electricity delivered	Specification that the connections to households are in fact made and electric delivered.
	Twelve functional HC power supplies	Infrastructure – Output 1.3: Health clinic PV systems reconstructed, functional and hosp. staff and patients benefitting.	Specification that the systems are actually used
	Five clinics connected to CEAC with bespoke agreements	Infrastructure – Output 1.4: Five clinics connected to grid. CEAC has 20kW more PV capacity, electricity being delivered to clinics	Specification that the connections to clinics are in fact made and electricity delivered
	Training sessions for CEAC board	Dropped	Included in CEAC – Output 2.1
	Policy support papers	Dropped	
	CEAC team training	Dropped	Included in CEAC – Output 2.1
	A national +SE knowledge platform	National Capacity Development – Output 3.1: A national, online SE information platform that is functional and has visitors (including public authorities)	Specification that the websites is functional has visitors.
CB TOC	Thematic reports & workshops on mini-grids, PV, wind, SSH,	National Capacity Development – Output 3.2: Thematic reports & workshops on mini-grids, PV, wind, SSH. Workshops accomplished with participants; reports available online and delivered	Specification that reports and workshop are not only completed but actually patronized.

Source	Original formulation	Formulation for Reconstructed ToC at Evaluation (RTOC)	Justification for Reformulation
	Curriculum and trained lecturers	<p>electronically to intended audience (including public authorities)</p> <p>National Capacity Development – Output 3.3: A new Haitian post graduate certificate course in SE with students attending courses</p>	Specification that the program really has students

141. The Long Term Impact for the TOC is, 'better access to reliable and sustainable electricity and efficient use of electricity in Haiti,' which rests on a series of implicit assumptions and risks, the most important of which were never stated in the Project Documents but were specified in the Project Risk Matrix–included

- no major natural disasters
- controlled corruption
- non-interference from the former government energy monopoly (EDH)
- civil, political, and legislative stability

142. To explain the TOC in an easily understandable format, and how the above impact is achieved, below are presented the basic assumptions related to each component and then the two causal pathways that begin with outputs and move through outcomes to intermediate states:

(i) causal pathways from the outputs to outcomes

(ii) causal pathways from the outcomes to intermediate states

(Intermediate state causal pathways to intended impact are embedded in the same causal pathways that lead from outputs to outcomes.)

143. The causal pathways are defined below within the component schema seen earlier of 1) Infrastructure, 2) CEAC, and 3) National Capacity building.

INFRASTRUCTURE

144. Assumption: access to electricity improves quality of life, and improve living standards, thus, people living in the target area want access to electricity and will readily connect to an available grid to obtain affordably priced electricity,

(i) Causal pathways from the outputs to outcomes

Output 1.1: Mini-grids repaired & household connections made, electricity being delivered

Output 1.2: Fifteen km of new MV and LV distribution grid, new household households made, electricity delivered

Output 1.3: Health clinic PV systems reconstructed, functional and hospital staff and patients benefitting

Output 1.4: Five clinics connected to grid. CEAC has 20kW more PV capacity, electricity being delivered to clinics

Driver 1.1: Income from Employment induces cooperation

Driver 1.2: Electricity available at a price affordable to beneficiaries induces them to use and pay for the electricity

Outcome 1.1: Purchase and use of electric devices by beneficiary households and clinics

(ii) Causal pathways from the outcomes to intermediate states

Outcome 1: Purchase and use of electric devices by beneficiary households and clinics

Driver 2.1: Use of appliances to accomplish work, improve living standards increase income.

Driver 2.2: Loans incentivize members to purchase appliances.

Intermediate State1: Benefits for the beneficiaries are proven and HSE II model is replicated in other departments in Haiti.

CEAC

145. Assumption: A local, representative electric cooperative equipped with staff trained in management could govern the grid in an economically sustainable manner.

(i) Causal pathways from the outputs to outcomes

Output 2.1: CEAC members and staff are trained in PUE & gender awareness

Output 2.2: Cash in bank and used for operations and credit in context of gender equitable strategy

Driver 2.1: Employment incentivizes CEAC staff.

Driver 2.2: Training + Loans incentivizes membership participation and promotes PUE

Outcome 2: Effective governance, staff & membership understand roles, transparency, representative elections, impartial sustainable loan program for members, liquidity. Gender issues are integrated into the mini-grid reconstruction activities, CEAC microcredit initiatives

(ii) Causal pathways from the outcomes to intermediate states

Outcome 2: Effective governance, staff & membership understand roles, transparency, representative elections, impartial sustainable loan program for members, liquidity. Gender issues are integrated into the mini-grid reconstruction activities, CEAC microcredit initiatives

Driver 2.2: Success + member participation in coop leads to better governance + income = sustainability

Intermediate State1: Fully self-sustained cooperative, grid operational, 24/7 electric to cooperative members, 2,500 metered connections

NATIONAL CAPACITY DEVELOPMENT

146. Assumption1: that the national government and educational institutions would, if funded, fulfil their commitments to the project, and,

Assumption 2: that there would be strong buy in from all stakeholders: the local population, institutions and businesses, local and national government, and Haitian students who were expected to patronize the new courses in renewable energy

(i) Causal pathways from the outputs to outcomes

Output 3.1: A national, online SE information platform that is functional and has visitors

Output 3.2: Thematic reports & workshops on mini-grids, PV, wind, SSH. Workshops accomplished with participants; reports available online and delivered electronically to intended audience

Output 3.3: A new Haitian post graduate certificate course in SE with students attending courses

Driver 3.1: Income through contracts and employment as well as hope for future employment

Outcome 3: Technical assistance to the GoH and new knowledge shared are implemented in appropriate national rural electrification policies

(ii) Causal pathways from the outcomes to intermediate states

Outcome 3: Technical assistance to the GoH and new knowledge shared are implemented in appropriate national rural electrification policies

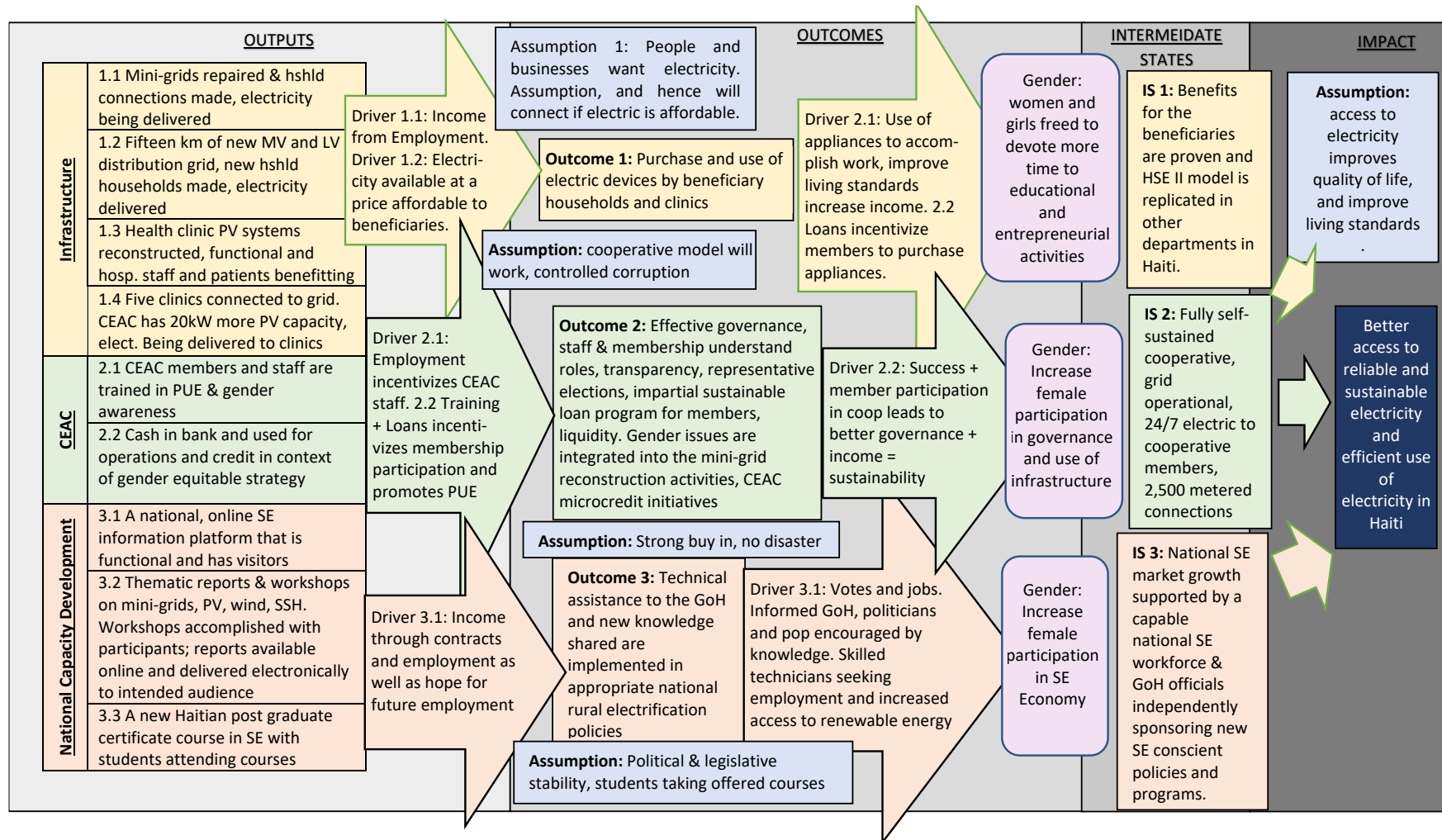
Driver 3.1: Votes and jobs. Informed GoH, politicians and pop encouraged by knowledge. Skilled technicians seeking employment and increased access to renewable energy

Intermediate State 3: National SE market growth supported by a capable national SE workforce & GoH officials independently sponsoring new SE conscient policies and programs.

GENDER

147. Gender is treated separately. The original Prodoc considered HSE II to be gender neutral and the TOCs made no mention of gender. The revised Prodoc and outputs included gender training in the CEAC component. Specifically, gender issues integrated into the mini-grid reconstruction activities, training, CEAC microcredit initiatives and SE platform publications and events. In the reformulated TOC, the following assumptions regarding gender were included, some of which were mentioned or alluded to in the Project Documents and others that are considered here as assumptions.
148. Gender Component 1: Infrastructure Component Gender Assumption: The purchase of household labor saving devices, particularly laundry machines and water pumps, free women and girls to devote more time to educational and entrepreneurial activities.
149. Gender Component 2: CEAC Component Gender Assumption: Females equally represented in cooperative governance and membership and equally educated and competent in cooperative management strategies will improve female participation in governance, an area where Haitian woman are, as a cultural rule, extremely under-represented. Equal access to loans to women, increasing the probability that the household will purchase labor-saving devices that enhance female freedom from intense household labor activities.
150. Gender Component 3: National Capacity Development, Communication and Policy Products Gender Assumption: The economic opportunities made available with the growth of a national SE economy couple with assured equal opportunity for women to participate in technical training, energy platforms and events will result in increased female representation in the sector and increase access to formal employment for women.

Figure 5: Theory of Change



EVALUATION FINDINGS

A. Strategic Relevance

Alignment to UNEP MTS, POW and Strategic Priorities

151. The project aligned closely with the UNEP POW and Medium-Term Strategy 2014 – 2017, Climate and Conflicts. Specifically, the relevant Expected Accomplishments EA2) Risk and Recovery: the capacity of countries to use natural resource and environmental management to support sustainable recovery from natural and man-made disasters is improved.
152. It further corresponds with the UNEP Medium-Term Strategy of 2014 – 2017 Climate Change Strategic Focus EA2) Low emission Growth: Energy efficiency is improved and the use of renewable energy is increased in partner countries to help reduce greenhouse gas emissions and other pollutants as part of their low emission development pathways
153. Both the above MTS EAs were the same in the 2016-2017 UNEP POW'S at the time of the project design.
154. HSE II also aligned with the 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, the year before the project went into effect. Specifically, the relevant Sustainable Development Goals (SDG) were,
- SDG 7:** Ensure access to affordable, reliable, sustainable and modern energy for all,
- Target 7.1: By 2030, ensure universal access to affordable, reliable and modern energy services.
 - Target 7.2: By 2030, increase substantially the share of renewable energy in the global energy mix
- SDG 13:** “Take urgent action to combat climate change and its impacts”.
155. The HSE II design also meets the United Nation’s Bali Strategic Plan goals of helping build national government capacity in the target SE sector, including all of the component 3 meant to address weaknesses in national governance and assure future capacity and involvement of the GoH, working through the government entities ANARSE and the MTPTC Energy Cell.
156. Rating for Alignment to UNEP’s Medium-Term Strategy, Programme of Work and strategic priorities is *Highly Satisfactory*.

Alignment to Donor/Partner Strategic Priorities

157. The design fit well with NMFA, USAID, and IDB donor priorities, as well as the non-contributing but other major donor to the GoH, the World Bank. Specifically, NMFA has an ambitious energy objective of reducing its own carbon footprint by 95 percent between 1990 and 2050 and a policy of promoting transition to renewable energy in

developing countries. Promoting a shift to renewable energy is also part of USAID, IDB and the World Bank's development policies for developing countries.³⁰

158. Rating for Alignment to Donor/Partner strategic priorities is *Highly Satisfactory*.

Relevance to Global, Regional, Sub-regional and National Priorities

159. HSE II aligns with CARICOM (Caribbean Community) 2008 Energy Policy Regional Objective, first drafted in 2007 and specifically, emphasizing *greater utilization of renewable and sustainable energy sources, reduced dependence on fossil fuels and greater efficiency and conservation in the use of energy*.³¹

160. In December 2011, as described on page 11 of the Project Design Document, the Government of Haiti published a Rural Electrification Strategy Paper that prioritized low cost, renewable energy from micro-grids. The strategy was a road map for HSE I in 2012 and the subsequent HSE II. It included the following points:

- Promotion of a two-phased approach, comprised of Phase 1: Lighting for All, and Phase 2: Electricity for All
- Investment in local mini-grids powered by renewable and conventional energy hybrid systems
- Investment in portable solar-powered home systems and lanterns
- Investment in battery rental and central charging systems
- Use of micro-credit to increase the affordability of portable power solutions
- An emphasis on economic sustainability for installed systems
- Promotion of the use of renewable energy in part to reduce dependence upon fossil fuel imports
- Human capacity-building to support increased energy access, with a focus on the private sector

161. On February 3, 2016, despite no sitting parliament, the outgoing government signed into law a series of bills that removed obstacles to growth of the renewable energy sector. The decrees were published in the journal *Le Moniteur* on 3 February 2016. The most important outcomes were:

- Adoption of a new legal and regulatory framework that ended the public utility's monopoly on producing, selling, and distributing electricity, and opened the door to private investment.
- Establishment of a regulatory agency, l'Autorite Nationale de Regularization du Secteur de l'Energie (ANARSE), which the government began funding in October 2017 and appointed its first leader, Evenson Calixte, who despite political instability and turnover in all other sector of the government, continues to oversee the entity and coordinate with the MTPTC Energy Cell.

³⁰ IEA (International Energy Agency). Norway 2022 Energy Policy Review. P 3.

<https://iea.blob.core.windows.net/assets/de28c6a6-8240-41d9-9082-a5dd65d9f3eb/NORWAY2022.pdf>

USAID 2016. ENERGY FACT SHEET January 2016.

<https://www.usaid.gov/sites/default/files/documents/1862/ENERGY%20Fact%20Sheet%20FINAL%20Jan%202016.pdf>

³¹ https://caricom.org/documents/10862-caricom_energy_policy.pdf

162. In April 2016, Haiti signed the Paris Agreement to reduce greenhouse gas emissions. At the beginning of Jovenel Moïse's term, Haiti also hosted a Haiti Sustainable Energy Forum in Port-au-Prince with the World Bank and the Korea Green Growth Trust Fund.³²
163. In 2017, Article 24 of the Finance Law 2017-2018, with the intent of encouraging the development of solar energy, removed taxes on imports of solar equipment into Haiti.
164. The Moïse administration made electrification of the country the cornerstone of its national development initiatives, something that evolved into a struggle for control the national electric grid. Beginning in 2018, the Moïse administration began a campaign to dismantle the traditional energy sector and capitalize on the new regulations to build a more efficient system. The government rescinded contracts and power subsidies paid to the elite. The government also suspended contracts with three private power suppliers and seized assets of two in the capital city of Port-au-Prince. Major stakeholders were a former 1st lady president (2006-2011). Another was closely associated with the Aristide government (1991, 1994-1996, 2000 -2004), and a scion of one of Haiti's oldest elite families. Arrest warrants were issued for both.³³
165. Throughout this period (2018 to 2020), electricity that had been only sporadically available to 33 percent of the Haitian population became even more sparse and unreliable.³⁴ Protests advocating for electricity and against increasingly insecurity and violence became common. Blackouts in the capital city lasted as long as six weeks. Frustration occasionally spilled over into violence. In one case a neighbourhood gang shot up the local offices of EDH, the former holder of the electric monopoly and main distributor of electricity in Haiti.
166. On May 8, 2018 Haiti joined the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE), a CARICOM organization created to promote renewable energy and micro-grids, share research data and technology, and promote cooperation and coordination between Caribbean states in their endeavour to combat and prepare for climate change through the adoption of fossil fuel energy alternatives.³⁵
167. In December of 2018 then president Moïse borrowed USD 157 million from Taiwan's Export-Import Bank, USD 27 million of which was intended to contribute to the construction of 43 hybrid microgrids across the country.³⁶
168. On July 7, 2020, amidst the highly publicized struggle over control of the energy sector described, president Moïse was assassinated in his home. A new government assumed power. Within months, the energy concessions were reinstated and the power plants returned to the former concession holders.³⁷

³² Deibert, Michael 2020 (Sept). Haiti's long road to energy self-sufficiency. Energy Monitor. <https://www.energymonitor.ai/policy/haitis-long-road-to-energy-self-sufficiency>.

³³ Ibid

³⁴ For energy availability in Haiti see, IFC (International Finance Corporation) 2021 CREATING MARKETS IN HAITI Leveraging Private Investment for Inclusive Growth. <https://www.ifc.org/wps/wcm/connect/9aade6f0-c0fa-4264-a5ce-665d9bab4700/CPSD-Haiti.pdf?MOD=AJPERES&CVID=nNwCVMt> for the 2018 to 2020 period of upheaval in the energy sector see,

³⁵ CCREEE 2020. Haiti Energy Report Card. <https://www.ccreee.org/wp-content/uploads/2022/01/CCREEE-ERC-HAITI-January-20.pdf>

³⁶ Deibert, Michael 2020 (Sept). Haiti's long road to energy self-sufficiency. Energy Monitor. <https://www.energymonitor.ai/policy/haitis-long-road-to-energy-self-sufficiency>

³⁷ Le Nouvelliste 2022. Le ministre des TPTC fait le point sur l'affaire opposant la Sogener à l'Etat haïtien. Publié le 2022-09-01 | <https://lenouvelliste.com/article/237924/le-ministre-des-tptc-fait-le-point-sur-laffaire-opposant-la-sogener-a-letat-haitien>

169. Despite the turmoil and Rating for Relevance to regional, sub-regional and national issues and needs is *Highly Satisfactory*.

Complementarity with Existing Interventions/ Coherence

170. Overview: HSE I and HSE II, were part of an internationally backed development effort coordinated at the national level with consideration for the investments and activities of other donors and implementing agencies, including IDB, World Bank, EarthSpark, and the Earth Institute. The original HSE I plan was coordinated under the auspices of the then Interim Haiti Recovery Commission and considered the objectives of all the cited institutions as well as the Haitian Government and the UNEP priorities. Those efforts that focused specifically on the grid were excellent use and complements to existing efforts. Where HSE II fell short was in exploiting existing educational and technical resources. Specifically, with regard to national capacity building, use of local educational institutions and technical capacity in the neighboring Dominican Republic.
171. Geographic focus: HSE I and II focused on the South and specifically on the Coteaux area because of the lack of electrification and organizations working in the area. As elsewhere in Haiti, the priority was renewable energy and financially sustainable system of payments.
172. GoH activity: The project supported A 10-person team working under the special Haiti Prime Minister Delegate for 18 months. HSE had two consultants working with the Delegate. The entity was later disbanded due to a government policy change.
173. National Priorities: HSE II helped design and supported the creation of HEI, the Haitian Energy Institute, an entity meant to compile research and lessons learned on renewable energy in Haiti and share them through an online platform. Unfortunately, the effort withered due to circumstances that were never clear.
174. National Priorities: The project supported UNIQ (University of Quisqueya) to create a graduate level curriculum in renewable energy for engineering students. Unfortunately, the effort withered due to circumstances that were never clear.
175. Existing infrastructure: The HSE II project built on prior efforts of the national energy company EDH, using electric poles the utility had previously erected.
176. Complementary Projects: The HSE II project supported the reconstruction of the EarthSpark grid in nearby Les Anglais with a USD 250,000 grant, at one point considering closing the distance between the two grids by extending the CEAC grid Chardonnières.³⁸
177. Complementary Projects: The project attempted to tap into EarthSpark's feminine electrification strategy by hiring Earthquake to evaluate, train and make recommendations for working with female organizations in the CEAC activity area and designing the loan program to consider the specific interests of women.
178. HSE II did not make use of the local University system, instead contracting a University in distant Port-au-Prince (UNIQ). HSE II also did not capitalize on the SE capacity in the neighboring Dominican Republic, instead depending on NGOs and international

³⁸ UNOPS 2020 (Nov 12). PROJET D'EXTENSION DU RÉSEAU DE DISTRIBUTION DE LA CÉAC VERS LA VILLE DE CHARDONNIÈRES NOTE CONCEPTUELLE et EVALUATION PRELIMINAIRE Préparé par l'Équipe Projet : Ronald Louis, Chef de Projets Ivan Zhdanov, Digital Engineer/UNEPAndré Ricard, Consultant en énergie/UNOPS

consultants that are themselves dependent, not on the local SE economy, but international aid.

179. Rating for Complementary with Existing Interventions is Satisfactory.

Rating for Strategic Relevance is Highly Satisfactory.

B. Quality of Project Design

180. The logic behind the HSE II was holistic: it covered electric infrastructure (Component 1 of the TOC), governance of the infrastructure (Component 2 of the TOC), and building of technical capacity that would be needed to make the project technologically sustainable (Component 3 of the TOC). The infrastructural design was excellent. However, there were critical oversights in planning for governance, financial sustainability, technical support, and capacity building. These oversights are the basis for lowering the Quality Design rating of Satisfactory given in the Inception Report to Moderately Unsatisfactory here.

181. The equipment and other material needs of HSE II identified in the design documents were recognized to be much greater than the budget. The UNEP allocation provided only a “critical early and reliable funding baseline focused on energy supply.” The balance of funds was anticipated to come from other relief and recovery funding, including support from USAID and IDB. This introduced a budgeting contingency that could have undermined the project and, due to the loss of funding from USAID and delayed disbursement from IDB, did have a negative impact on funding and the timely completion of the project.

182. HSE II depended on baselines from HSE I, including energy demand baseline assessment conducted by NRECA. The results assessment in the Prodoc and revision included a mid-term evaluation and well as the current terminal evaluation. The project monitoring and reporting plan was dependent on internal UNEP project oversight and based formal UNEP project monitoring and reporting structure. The project manager-UNEP Haiti Country Programme Manager had a dual reporting line to the UNEP Post Conflict and Disaster Management Branch Operations Manager and the UNEP Regional Office (Latin America Caribbean). Lack of external oversight meant that UNEP would essentially be evaluating and overseeing itself, a clear conflict of interest in effectively monitoring the project and getting timely feedback.

183. Below are a summary of the other strengths and weaknesses of the design.

The administrative and institutional design

184. Strength: The role of implementing partners was clear and logical as was the internal monitoring plan with division of tasks, quarterly financial reports from partners, and use of individuals and institutions already working in Haiti and familiar with the tasks and challenges. The project design included efficient division of tasks between UN and international organizations operating in Haiti, while avoiding the pitfalls of engaging local institutions with known track records for corruption and inaction, most notably EDH which, until recently, held a monopoly on production, distribution and sales of electric power in Haiti, which falling far short on delivery of electric service and billing (see EDH).

185. Weakness: HSE I and HSE II were heavily dependent on procuring resources from outside of the island to get the infrastructure built. They used UN and not national, private business channels with demonstrated flow of the critical technical materials needed for the grid. What this means from the perspective of design is that it should have been apparent that without UNOPS support, CEAC would have a difficult time procuring materials in the future. Dependence on procuring high technology and expertise through UNOPS was arguably unavoidable, given the high-tech nature of the project, but it nevertheless should be considered as a design flaw.

Adaption to the National Context

186. Strength: The project anticipated in the risk analysis most of the problems that subsequently came about, particularly with governance and security. It worked around these obstacles by employing the above seen institutional strengths of UN agencies, UNEP and UNOPS.
187. Weakness: Notwithstanding their recognition of the political and security threats, the design underestimated the historical severity of instability in Haiti. Political instability and civil unrest have been endemic in Haiti for the past 218 years, severely so for the past 42 years. Underestimating the likelihood of political instability and the impact it has on the formal economy, procurement, emigration of skilled technicians is a common mistake international organizations make in Haiti and it undermines most development projects. To assure that a project works in the Haitian context, it should be as locally self-sustaining as possible. A specific example is dependence on transport technology. The project used multi-ton bucket trucks for which there is no dependable local sources for parts or technicians to repair them. Today, virtually all these trucks are out of service. Meanwhile, there is a thriving local economic of small motorcycle-pickups. EarthSpark on the neighboring Les Anglais grid uses motorcycle pickup as and hand ladders to do repairs.

Decentralization and National Priorities

188. Strength: By focusing on the South and working through the UNEP office located in Port Salut, the project complemented the now three-decade old GoH priority of de-centralization making it a rare exception to the majority of UN, NGO, parastatal, business and educational institutions headquartered in Port-au-Prince.³⁹
189. Weakness: Despite localization of the administration, when it came to capacity building the project design fell into the centralization trap. Specifically, the project was intended to focus on the Department of the South, yet Capacity Building was invested at the national level. Technical training, website, archive, and a research institute was contracted through the University of Quisqueya, (UniQ) one of the best Universities in the country but located in distant capital city of Port-au-Prince. Aggravating that choice, project designers knew the metropolitan area was experiencing significant security issues. A more logical alternative would have been the American School in Les

³⁹ The 1987 constitution called for de-centralization and USAID financed programs sought to decentralize the government and spread investments in development more evenly throughout the country, but with little impact. By 1990, 90 percent of Haiti's exports and 60 percent of imports were going through Port-au-Prince; 80 percent of the national expenditures were made there; and today at least 95 percent of all foreign NGOs have their headquarters in the capital. Despite the rhetorical drive to de-centralize, Haiti today is among the most centralized countries in the world. A 2012 World Bank policy research paper rating 182 countries on both de jure and de facto indicators of political, fiscal and administrative centralization put Haiti 180th, 3rd from bottom on fiscal decentralization; 175th, 8th from the bottom on political decentralization; and 181st, 2nd from the bottom on administrative decentralization.

Cayes. Highlighting the point, beginning in 2006, the Haitian Government launched a campaign to decentralize higher education, creating a second university system for the provinces (UPR: Regional Public Universities). At the time that HSE II was designed in 2016, the network of UPR institutions has grown to ten schools with a total of ~10,000 students attending them, including Les Cayes. Indeed, while HSE II was planning to use UniQ to host the HEI, the university was in the planning stages to move its Department of Agronomy to the Plateau Central.⁴⁰

Compatibility with local economy and recent experiences with Electrification

190. Strength: The project was filling an unmet need/want for electricity in the region, one that may otherwise not have been filled.
191. Weakness: The project designers as well as the donor consultant for NMFA were apparently unaware that there was a local grid in Port-a-Piment as recently as 2010-2011, only one year before the first HSE. The NMFA consultant report says there had not been a grid since 1927, citing some poles built by a politician. The grid was powered by two diesel generators, 230 kVA and 250 kVA. According to a local informant, the generators were sabotaged in 2011, at the time that HSE I was being planned.



Figure 6: Port-a-Piment grid 230 kVA and 250 kVA gensets

Compatibility with local culture and household economy

192. Strength: As seen in earlier sections, this creation of the project met clear needs in the region, specifically addressing the absence of electricity in the immediate area, and the unlikelihood that the regional electric utility (EDH) would meet these needs in the near future.
193. Weakness: Little attention was given to what was happening at the level of local economy and household. The project was not informed as to how many households already had PV systems or other means/access to power, making it difficult to infer counterfactuals and suggesting that perhaps the designers were unaware altogether of household level dynamics and solar systems that may already be popular in the area.

Infrastructural Component

Appropriateness of the technology

Renewable Energy

194. Strength: The use of PV technology was timely and appropriate, being renewable and clean.
195. Weakness: By design, 85 percent of the grid electric is produced by diesel generators, making continued sustainability of the project dependent on stable petrol prices and

⁴⁰ MENFP. 2007. The National Strategy for Action on Education For All. Port-au-Prince: MENFP.

heavy periodic outlays for purchase of new generators (see Sustainability, sub-section Technology).⁴¹

Life-expectancy of the Technology

- 196. Strength: Solar panels and batteries are long-lived investments.
- 197. Weakness: Diesel generator are not long lived. As testament, CEAC has gone through two generators. Only one remaining generator can produce electricity for the grid, meaning that the grid is one breakdown away from shutting down.

Complexity

- 198. Strength: Much of the technology used in grid is turnkey, such as the generators and pre-payment software. Much of it can be remotely monitored, diagnosed and debugged, such as the batteries, inverter systems, pre-payment software.
- 199. Weakness: The technology is nevertheless highly complex and inappropriate for the local economy. There is no local capacity to fix the gensets, or the battery inverters or for that matter, the computers in the office. Even where there is access to technicians in Port-au-Prince is limited and time consuming. Spare parts and technicians must be sourced outside of Haiti.

The environmental impact

- 200. Strength: PV systems are renewable, clean, and environmentally friendly. Risks of contamination were comprehensively considered and addressed. Transformers were PCB (polychlorinated biphenyl) free.
- 201. Weakness: Diesel gensets are not environmentally friendly and. HSE II is a minimum of 85 percent diesel and a maximum of 15 percent solar without a battery bank and a maximum of 30 percent with the battery bank. Meaning that, by design, it is marginally SE.⁴²

CEAC Component⁴³

Organization

- 202. Strength: The project also originally used NRECA to create a blueprint of the CEAC cooperative. NRECA has deep experience in this respect, being the largest electric cooperative in the USA.
- 203. Strength: CEAC is a grassroots organization with representative local leadership elected by beneficiary members, thereby making it an ideal vehicle for engaging all stakeholders, from local businesses and politicians, to donors and NGOs, to national entities such as the governments MTPTC.

⁴¹ In contrast to the CEAC grid's design, the Les Anglais grid which HSE II helped repair was designed to be over 90% solar powered for 24/7 operation. This difference in design has enabled the EarthSpark grid to keep fuel costs relatively low and to operate relatively reliably even when fuel is inaccessible.

⁴² See CEAC hybrid BoD modeling 26 May 2018

⁴³ The ultimate governance of the grid was always planned to be the CEAC cooperative.

204. Weakness: A review of the history of cooperatives and associations in Haiti should have given the planners little hope of success using a cooperative. The 1,000s of cooperatives and associations upon which aid projects in Haiti have depended are demonstrative failures. Over and over in the past four decades one consultant and aid worker and one PhD student after another arrived at the same conclusion: cooperatives in Haiti are, at best, effective for only a short period of time. At worst they exist primarily to capture aid funds. As far back as 1986, White and Smucker (p. 4) described them as undermined by “Nepotism and unmitigated loyalty to extended family and individual factions” Kaufman (1996 p. 10) concluded they “frequently are formed in response to community development programs and remain, to a significant extent, ‘groups of symbolic participation’” Jennie Smith (2001) described them as, “plagued with corruption, mismanagement and other problems.”⁴⁴
205. Weakness: The exit strategy hinged in part on CEAC and the income from the smart-meter system being enough to sustain the project. Yet, it was known at design-stage from accounting, from the HSE I experience, and from EarthSpark’s experiences on the neighbouring Les Anglais grid that CEAC could not become sustainable at current billing rates. The rates of Les Anglais are 2x as high as CEAC rates. By not addressing this discrepancy, not only did the design assure that CEAC would at some point have to raise the prices of electricity, they assured that the onus of doing that would fall on CEAC after the UNEP left. This point is so important that it bears repeating. Because CEAC members have become accustomed to low rates under UNEP, when UNEP pulls out CEAC may either have to quit providing electricity altogether—because no one is subsidizing it’s USD 12k monthly deficit—or raise prices by 400 percent. All this was known at least since the UN Electric accord. If they do raise prices, there will be great tension, conflict, mistrust, and finger-pointing. That one issue and the conflict it could generate may be enough to destroy the project, assuring that it will not continue. Indeed, given the propensity for violent collective action in Haiti, it could result in vandalism and dismantling of the grid. The project anticipated this problem with sustainability and explored I-RECs (International Renewable Energy Credits) as a palliative.

Sustainable Energy Capacity Building and Governance (SE CBG)

206. Strength: The project attempted to build technical capacity and increase SE awareness by focusing on training and support to University of Quisqueya in Port-au-Prince. In addition to promoting a curriculum for students to study SE, the project financed the creation of the HEI (Haiti Electric Institute), an entity that was supposed to implement and maintain an SE website to act as a national platform for information on new research and developments in the Haitian SE sector. The project was also intended to support policy innovation at the level of the Ministry and ANARSE.
207. Weakness: With the recent exception of the UPR (Regional Public Universities) initiative launched in 2016, centralization in Haiti has been a mostly one-way street for the past two centuries. Recalling the discussion above about centralization, the SE

⁴⁴ For review of the literature on history of Haiti cooperatives see page 8 to 14 of the following report: VALUE CHAIN STUDY Cacao, Cashews, Castor Oil, & Breadfruit in The Departments of the Grand Anse and South. Submitted to ILO research by Sociodig. Report author and Timothy T Schwartz 5/ 2 7 /2020. <https://timothyschwartzhaiti.com/wp-content/uploads/Castor-Oil-Cacao-Bread-Fruit-Cashews-Report.pdf>

CBG component was based on logic contrary to prevailing demographic patterns, as well as social and economic incentives, setting the project up for the failure it experienced (all SE CBG activities had to be cancelled because of failure for partners to fulfil their commitments, even after they had been paid).⁴⁵

208. Weakness: While recognizing on page 41 of the Project Design Document that, “the most relevant countries with experience of Sustainable Energy (SE) use to Haiti” includes the neighbouring Dominican Republic—with which Haiti shares an island and a 366km border—the project ignored the advantages of aligning with the DR capacity and markets. The DR has successfully undergone an energy sector transition over the past 30 years that parallels what Haiti is trying to achieve. Integrating DR capacity into the project design could have offset many of the identified risks, such as lack of technical capacity, emigration of technicians, and political instability that could impact procurement. The lessons the Dominicans have learned, their technicians and supply-side market for SE materials are all specific to the island climate and location. Profiting from the Dominican experiences could have been a cornucopia of ‘low-hanging fruit’ that would have been of great value to the project and increased the probability of success and sustainability.

Gender

209. The original Prodoc defined HSE II as gender neutral. In the Report from the PRC (Project Revision Committee), there was a push to reverse this assessment and search deeper for impact the project may have on gender equality. The ensuing discussion was perfunctory and vague. Issues that stood out were:
210. The Project Design Revision laments clinics in some areas not offering pre-natal care because they lack electricity makes no sense. There are prenatal clinics throughout Haiti with no electricity had have been for at least 100 years. Nor is there explanation for why prenatal clinics need electricity to function. Yet this was determined to be a gender equalizing impact. To the designers credit, they schedule USD 100,000 for purchase of prenatal equipment for the clinics.⁴⁶
211. Discussion in the Project Design Document about the iniquitous effects of charcoal smoke being a hazard to which women are particularly exposed is becoming an increasingly possible with changing technology. A problem with that prospect is that that Haitian charcoal market generates an estimated USD 700 million a year, It is the fulltime occupation for the poorest and most vulnerable people and families in rural areas. And it is the safety net par excellence for the entire rural population. When crisis hits, such as droughts and hurricanes, rural families turn to the production and sale of charcoal, such that people in the urban wharfs know where a crisis has struck based on the changing regional source of charcoal. Moreover, we are at least a 20-years or

⁴⁵ People, institutions, and investments are overwhelming made in Port-au-Prince and people travel to Port-au-Prince to work, live, get educated. They seldom return, hence the fantastic growth seen in the section above on centralization. For many, migration to Port-au-Prince is a stage in migration out of the country.

⁴⁶ A visit to six clinics and interviews with nurses, suggests no reason that a prenatal clinic in rural Haiti depends on electricity. Moreover, when the consultant asked a former sub-minister of the Haitian Ministry of Health (MSPP), he conferred that there is no reason that electricity would be a necessary for a pre-natal clinic. Useful, but by no means obligatory. To make sure it is gender proactive, the project slated USD 100,000 for purchase of prenatal materials for the hospitals.

more away from cost-effective electric burners and stoves that can compete with less expensive and readily available charcoal.⁴⁷

212. Other activities are lights in the house for studying, but this is no more useful to women than men.
213. Replacing kerosene lighting with electric ends the harmful effects of fumes from kerosene lamps, but it is not clear why this is more of a benefit for women rather than men.
214. The project identified the street lights installed by HSE II as gender active because it increases safety that comes with functioning streetlights after dark. But again, it is not clear why this is specifically an advantage to women, as if males too are not victims of crimes and violence—9 out of 10 victims of homicide and guns violence in Haiti are male.⁴⁸
215. Highlighting increased entrepreneurial opportunities that electric would make available to women with only vague reference to what these opportunities would be and how women rather than men would more greatly benefit and/or any consideration of whether men might in fact be empowered vis a vis women.
216. The Risk Matrix identifies the possibility of loans going to men rather than women but offers a palliative of specifying 5 percent of loans for single female-headed household, rather than the expect ~27 percent of single female-headed household found in surveys throughout Haiti, something that could be interpreted as a policy that mandates lower not equal participation of underprivileged women in the loan program. In fact, the CEAC Beneficiary survey found that 37 percent of households were headed by single women.^{49 50}
217. Discussions note that women are more active in the household—which is the recipient of most of the grid electricity—but conspicuously absent from the discussion is that electricity will have its most immediate and probably greatest impact on women by making it possible to use labor-saving laundry machines and water pumps, because women and girls are burdened in Haiti with cultural-gender task of washing clothes, dishes and fetching water.
218. A major gender issue for Haiti that is left out of discussion is the role of women in positions of political and organizational leadership, roles that are traditionally held by men in Haiti and result in under-representation. Few issues could be more important in addressing gender power relations. Yet, there is not a single mention of female roles in CEAC cooperative.
219. The most consistent gender activity cited in HSE II documents is the role the project could play in assuring female inclusion in the technical work force, seminars, and

⁴⁷ See USAID Blog. Cooking With Green Charcoal Helps to Reduce Deforestation in Haiti. Posted by Anna-Maija Mattila Litvak [https://blog.usaid.gov/2014/03/cooking-with-green-charcoal-reduce-deforestation-haiti/#:~:text=Delaney%20estimates%20the%20charcoal%20market,%2490%20million%20in%20northern%20Haiti\).](https://blog.usaid.gov/2014/03/cooking-with-green-charcoal-reduce-deforestation-haiti/#:~:text=Delaney%20estimates%20the%20charcoal%20market,%2490%20million%20in%20northern%20Haiti).)

⁴⁸ The figures for male homicide are based on unpublished UN Mission databases from 2016 to 2021.

⁴⁹ For examples of surveys in Haiti finding ~27 percent female headed households see, Sociodig 2013 CARE HAITI HEALTH SECTOR Gender Survey /I Life Saving Interventions for Women and Girl in Haiti Conducted in Communes of Leogane and Carrefour, Haiti 22nd August 2013 . USAID HAITI 2011 Building Assessments and Rubble Removal in Quake-Affected Neighborhoods in Haiti BARR Survey Final Report by Timothy T. Schwartz with Yves-François Pierre Eric Calpas May 13, 2011.

HEKS-EPER 2018. Grand Anse Baseline, Value Chains, & Notab Information Network 6/10/2018.

⁵⁰ For a review of surveys regarding single female headed households up to 2015, see

participation in other SE platforms, something that the HSE II Prodoc Revision document stated would be tracked by collection of gender disaggregated data. It is not clear how collecting disaggregated data would have done anything more than document the extent women are involved in the sector, i.e. there is no recommended action to promote female involvement. Moreover, the point is somewhat self-defeating as the documents also acknowledge that jobs in as electric technicians and engineers and considered male activities.

220. The fact that the design documents are silent or simply wrong on important gender issues suggests that gender was in fact not thought very deeply.

Rating for Project Design: Moderately Unsatisfactory

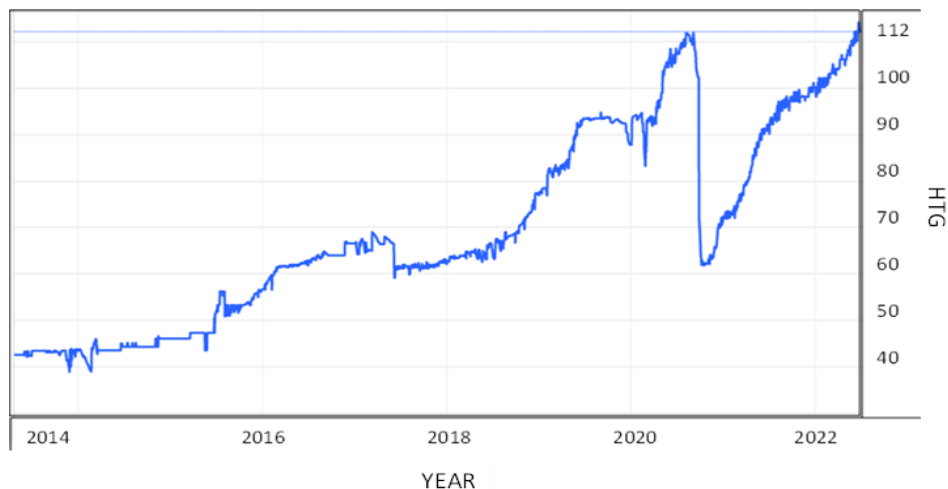
C. Nature of the External Context

221. The Project Risk Log recognized the possibility of political instability, increasing civil unrest and crime, and natural disasters—particularly another hurricane. All such events occurred, plus additional frustrations not mentioned in the Risk Log, such as volatile petroleum prices and inflation. The consequences were restricted flow of good from Port-au-Prince to the Southern peninsula, resulting in periodic gas shortages, and limited unavailability of parts to repair work vehicles.
222. **Riots.** On the July 7, 2018 the government tried to raise fuel prices, resulting in a week of street riots. The Prime Minister resigned on 14 July 2018. What was called *peyilok*, a play on the word for political gridlock became the norm and Haiti began a descent from fragile to failed state.
223. **Violent Political Gridlock.** In 2019 the struggle among criminal political elites and the questionably legitimate government in power was fought through the use of proxy street gangs, giving way to the resurgence of kidnapping that had plagued Haiti between 2004 to 2007 (but that had largely disappeared by 2016). In January 2020, kidnappings suddenly skyrocketed. The security situation continued to deteriorate throughout the year. In the first six months of 2021 kidnappings increased by 150 percent that of 2020 rate.⁵¹
224. **COVID Pandemic.** In the meantime, beginning in March 2020, the COVID-19 pandemic struck, restricting flights, causing one year of school closings. The CEAC grid was impacted to a limited extent by supply chain delays, particularly with the HEX meters. CEAC cooperative meetings were suspended because of restrictions on gatherings that could facilitate the spread of COVID. Overall, however, compared to local issues and context, COVID epidemic does not appear to have had a major impact on the project (see Para 369).
225. **Earthquake.** On August 2021, a 7.2 earthquake struck the Southern area where HSE II is located, destroying thousands of homes, killing an estimate 2,000 people. At least two of the hospitals where SELF had reinstalled PV systems were destroyed and the PV system batteries were rendered inoperable in four of the six clinics visited during the field research.

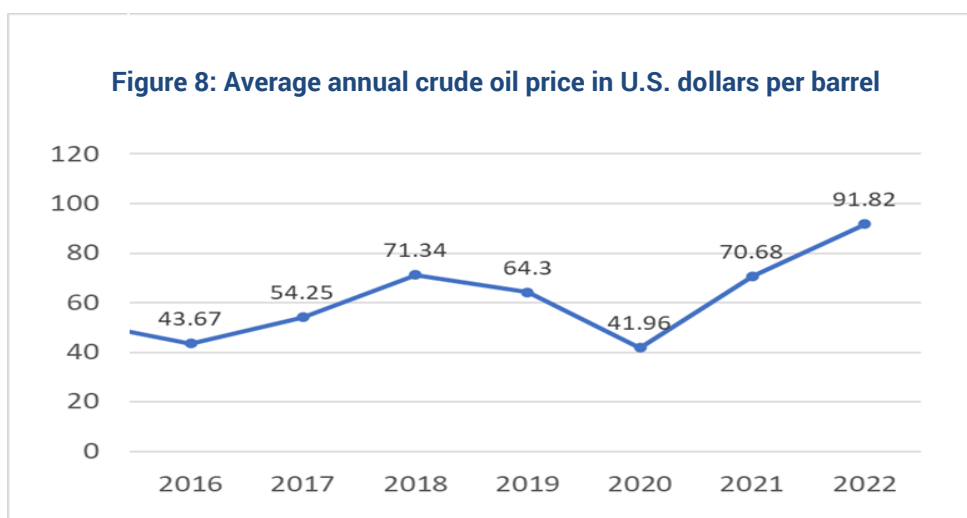
⁵¹ Arcos, Eduardo. 2021. "Data Illustrates Magnitude of Haiti's Kidnap-For-Ransom Crisis." *In* Forbes. June 16, 2021

226. **Assassination of the Haitian president.** On July 7, 2021 Haiti’s president was assassinated in his home. The year since, the situation in Haiti has normalized as one of extremely high insecurity. The rates of kidnappings are assumed to be the highest in the world. There are daily gun battles among, on the one hand, gangs in popular neighbourhoods fighting for territory and, on the other hand, the national police who many consider as corrupted themselves but who claim they are hampered by a government that does not want to restore order lest it be ousted from power. The collapse of the government is led to break down in the justice system, government support to rural projects like HSE II and the CEAC cooperative, intensified inflation, removal of petroleum subsidies, and break down in security that has resulted in the South being cut off capital and imports. The collapse has also intensified migration of technicians. The US State Department has since maintained its travel advisory at 4, the highest risk level, making it difficult to recruit skilled technical support upon which the grid depends, including mechanics for CEAC trucks currently in disrepair.
227. **Instability in the Haitian Currency.** Over the life of the HSE II project, the Haitian Gourde (HTG) has devalued overall by about a factor of 1/3, from ~44 HTG per 1 USD to ~120 (street value). It has not been a smooth devaluation. Inflation was aggravated in 2020 by a sudden valuation of 100 percent. The government pulled currency off the market while simultaneously pressuring the banks to lower price they paid for the HTG causing Haitian currency to double in value overnight and sending spending in investment to skidding halt as the business community and population tried to understand what was happening. With no mechanism for raising the costs charged to grid beneficiaries, inflation has meant plummeting returns for CEAC and devalued salaries for CEAC staff.

Figure 7: Devaluation of the Haitian Gourde vs. US Dollar 2016 until 2022



228. **Fluctuation in price of petroleum.** HSE II relied on diesel for 75 percent of its energy output. Until recently HSE II was insulated by government price controls. Those controls ended in 2021, sending the cost diesel more than double what it was when HSE II began and threatening to bankrupt CEAC.



Rating for Nature of the external context: Unfavourable

D. Effectiveness

229. The primary task of HSE II was to rebuild the CEAC grid. Seventy-seven percent of costs were spent directly on grid infrastructure and support.⁵²
230. Of the 9 outputs employed in the reformulated TOC, two were cancelled, there is no evidence that two others were ever achieved, for three there is evidence they were partially achieved, and two were 'largely or completely' achieved.
231. Outputs for each component are discussed in tables below.

Availability of Outputs

Outputs for Component 1. Infrastructure

232. Table 17 provides an overview of the outputs expected for Component 1 as redefined in the reconstructed TOC at Evaluation. It also provides a status indication of the availability of the output with evidence or examples supporting the status indicator.
233. The actual grids were both achieved, as evidenced by their existence and the fact that they are delivering electricity (1.1). According to EarthSpark employees interviewed during the field visit the Les Anglais EarthSpark grid significantly exceeded targets, albeit with an additional USD 50,000 input from HSE II (over and beyond the initial USD 200,000 grant) as well as other donors and additional support. Based on the data seen in Table 17: Component 1: Infrastructure, CEAC fell 20 percent short on target number of connections and 30 percent short on hours of electric delivered per day. The CEAC grid also fell short in that, despite intentions to add more line to the grid, no additional line was laid beyond what was accomplished by HSE I (1.2). It can be inferred that all

⁵² HSE II Budget Review 01=09-2020

Health Clinic PV systems were achieved by the fact that all seven physically checked during evaluation had been installed (1.3). None of the 5 clinics had been connected to the CEAC grid, as specified in the original and reformulated TOC (1.4).

Table 17: Component 1: Infrastructure

Expected project Outputs (as restated for reconstructed TOC)	Status	Evidence / examples of Outputs
1.1 Mini-grids repaired & household connections made, electricity being delivered	Largely Achieved	<p>Les Anglais Grid: There exists 93.3kW peak PV power and a 27kW Genset, 205.5 kW of battery storage, feeding a 1.3 km medium voltage line and 4.5 km low voltage line, currently delivering pre-paid electric service to 600 connections, 200 more than intended target, 24 hours per day, 7 days per week</p> <p>CEAC Grid: The grid was restored almost to pre-Hurricane Matthew status: 70 percent (98 of 140 kW had been lost). HSE II restored the power plant to 126kW (14 kW less than pre-hurricane status). The two diesel generators, a 120 kW and 250kW unit, as well as the control systems that were part of the hybrid-grid survived. The transformer connected to the 250kW unit was slightly damaged. Eighty percent of the poles on the 46km of distribution line had to be plumbed and 25 percent had to be replaced to restore the grid to 28 km of low-voltage (LV) distribution lines and 26 km of medium voltage (MV),</p>
1.2 Fifteen km of new MV and LV distribution line on CEAC grid, new hshld connections made, electricity delivered. 2,500 connections 15 km additional line Business plan target: 15 hours per day, from 7am to 10pm	Partially Achieved	No new line was added. CEAC currently delivers electric services for 13 hours per day (11am to 12pm), which is 4 hours less than intended. There are 2,019 connections, 481 less than targeted.
1.3 Health clinic PV systems reconstructed, functional and hosp. staff and patients benefitting	Completely Achieved	The consultant visited seven of the twelve clinics and verified the PV systems. However, two hospitals had been abandoned because of the earthquake damage. The system
1.4 Five clinics connected to grid. CEAC has 20kW more PV capacity, elect. Being delivered to clinics	Not achieved	None of the clinics in the grid area have ever connected to the grid. There was no increase of 20kW.

Outputs for Component 2. CEAC Capacity Building and Technical Assistance

235. Table 18 provides an overview of the outputs anticipated and delivered for Component 2 as redefined in the reconstructed TOC at Evaluation.

Table 18: Component 2: CEAC

Expected project Outputs (as restated for reconstructed TOC)	Status	Evidence / examples of Outputs
2.1 CEAC members and staff are trained, including gender awareness in context of electricity	Partially achieved	<p>It is difficult to verify extent of training. CEAC members have not held elections or a General Assembly since summer of 2017. Qualitative interviews suggest no input from members regarding CEAC operations. Gender plan for CEAC is contrary to that of EarthSpark recommendations, as is the de facto results. Specifically, there are no female membership or leadership quotas, no evidence of impact of guidance in purchase of appliances, only 1/5 of loans went to women. There were only three purchases of any productive, entrepreneurial appliances (a grader, a printer, and 'computer materials'). The eight purchases of stoves are either gas stoves (an unintended use of the funds) or electric stoves (which are highly energy inefficient). They are very likely intended for commerce in cooked foods, a definitively female undertaking, yet half were purchased by males. Moreover, while two of the CEAC staff—the director and a CEAC elected official—managed to qualify for loans, only 25 percent of CEAC survey respondents were even aware the loan program existed.</p>
2.2 Cash in bank and used for operations and credit in context of gender equitable strategy and promotion of PUE (Productive Use of Electricity).	Partially achieved	<p>HSE II and UN Electric did support shortfalls in CEAC. Average shortfalls in the final three years of the project were USD 12,000 per month.</p> <p>The credit program is only partially implemented. The money was entrusted to the major regional Credit Union, CPCS (Caisse populaire de la Côte Sud). Five years after the grid was electrified, and one year after they began loaning money, 30% of the money has been loaned; totalling 19 loans to the 2,019 members. One loan lists no goods purchased, so 18 loans went to support the Gender and PUE (Productive Use of Electricity) strategy commissioned by UNEP and developed by EarthSpark. As mentioned above, only 25 percent of CEAC survey respondents were even aware the loan program existed.</p>

236. There is partial evidence that CEAC staff was trained based simply on the fact that the grid is functioning and electricity is being delivered (2.1). For training of CEAC membership is more difficult to find evidence. Survey respondent did report meetings, but it is not clear why they have them. CEAC staff itself does not attend them. Staff expressed temerity in dealing with groups of members for fear of aggressive complaints about the grid.
237. CEAC has been functionally inert for at least the past 6 years. The last General Assembly was in 2017. There are plenty of excuses, hurricane Mathew in 2016, political gridlock in 2018, deteriorating security situation, COVID, an earthquake and assassination of the president in in 2021. However, the same excuses can and are applied going back in time: political Grid lock in 2015, hurricane Sandy in 2012, earthquake in 2010 Earthquake, hurricanes in 2008, civil unrest in 2004-2007, coup and three hurricanes in 2004, a 2002 to 2004 International Aid Embargo, and on and on it goes back to at least to 1981. Natural disasters, political instability, and periods of extreme insecurity are as common as stability and peace for the past 41 years and arguably much longer. Other excuses focus more on the fact that the grid did not have batteries until recently, that new connections were being added, that the CEAC permanent staff wanted to avoid conflict. The fact is, whatever excuse may be offered, the grid was re-electrified in 2017, the major financial cooperative in the CEAC activity area (CPCS: Caisse populaire de la Côte Sud) has functioned this entire time. Why cannot CEAC function?
238. CEAC gender policies are essentially non-existent: there is no quota for female membership or leadership or involvement in trainings or participation in credit. Any attempts at gender equity in the credit program is invisible; based on the fact that only 4 of 19 loans went to women. Worse, well intentional or not, affirmative gender action arguably targeted men, not women. For example, in Haiti freezers are a culturally female item, important in female household based commerce. Yet, of the 15 freezers purchased with CEAC loans, only five were purchased by women.

Outputs for Component 3: Sustainable Energy Capacity Building and Governance (SE CBG)

239. Table 19 provides an overview of the outputs anticipated and delivered for Component 3 as redefined in the reconstructed TOC at Evaluation.
240. All three outputs in Component 3 were either cancelled, mostly cancelled, or never completed. The only activities completed were two websites that can be thought of as minor subcomponents of 3.1 & 3.2.

Table 19: Component 3: Sustainable Energy Capacity Building and Governance (SE CBG)

Expected project Outputs (as restated for reconstructed TOC)	Status	Evidence / examples of Outputs
3.1 A national, online SE information platform that is functional and has visitors	Cancelled/Not achieved	Two websites were built but not platforms for anything more than presenting the existence of UN Electric, in one case, and CEAC, in the other case. Intended information such as lessons learned and research has not been posted, not even the Hydropower and PREC studies funded by HSE II. The sites only offer basic information about the project, cooperative and grid. https://ceac.coop.ht/web/ https://www.haitisustainableenergy.org/
3.2 Thematic reports & workshops on mini-grids, PV, wind, SSH. Workshops accomplished with participants; reports available online and delivered electronically to intended audience	Mostly cancelled/minimal achievement	
3.3 A new Haitian post graduate certificate course in SE with students attending courses	Cancelled/ Not achieved	

241. Rating for availability of outputs is *Moderately Satisfactory*.

Achievement of Project Outcomes

242. The assessment of the achievement of project outcomes was based on relevant assumptions described in the reconstructed TOC. The assessment is summarised below in Table 20.

Table 20: Assumptions informing outcomes

Assumption (Numbered to correspond with TOC)	Status	Comments / Evidence
a. Access to electricity improves quality of life, and improve living standards.	Holds	In the survey, respondents readily identified benefits of electricity, mostly lighting (55%), references to some kind of business (38%), refrigeration (27%), television/radio (24%), charging telephones (22%) fans (10%)

Assumption (Numbered to correspond with TOC)	Status	Comments / Evidence
b. People living in the target area want access to electricity and will readily connect to an available grid to obtain affordably priced electricity.	May or may not hold	CEAC has 2,019 connections. There is reportedly a waiting list of another 800 households. There is such high demand that CEAC no longer accepts applicants. The problem with the assumption is that electricity is not simply affordably priced, it is heavily subsidized. The real cost of the electricity is 3 to 4 times what CEAC charges. Respondents in the survey overwhelmingly say they will not pay more for electric.
c. A local, representative electric cooperative equipped with staff trained in management could govern the grid in an economically sustainable manner.	Does not hold	CEAC is not functioning as a cooperative. In the survey, 33 percent of CEAC connected households said they were not members of the cooperative. There has been no general assembly in five years. The current plan is to hold a General Assembly as soon as possible, but the plan is stalled because, according to an email explanation from the CEAC director, 'there are not enough members that believe CEAC will survive to recruit 9 candidates for an election.' Members currently play no part in managing the grid, other than paying for the electricity. In an open question regarding problems with CEAC, 24 percent of survey respondents complained of no communication from CEAC. Regarding gender, CEAC implemented no gender actions and has dispensed only 1/3 rd of the money for loans, to only 19 of the 2,019 CEAC members, one of whom is the head of CEAC. Regarding economic sustainability, CEAC is not economically sustainable.
d. The national government and educational institutions would, if funded, fulfil their commitments to the project.	Does not hold	National Government and educational institutions failed to live up to contracts and expectations. UniQ and HEI were cancelled for non-performance. The government still has no official SE energy strategy and has played no role in supporting CEAC.
e. No major natural disasters	Did not hold	The region was hit by an earthquake in August of 2021. This did not have a significant impact on the grid, but it did destroy two hospitals, one of which had 60kW PV system. The PV panels are all intact but not used. In the other 7

Assumption (Numbered to correspond with TOC)	Status	Comments / Evidence
		clinic/hospitals visited, the earthquake destroyed all the battery systems.
f. Controlled corruption	Undetermined	It is difficult to impossible to assess corruption. CEAC does not publish or explain its accounting practices to members. It would not share them with the consultant. CEAC would not even share membership lists, waiting lists. The CEAC director was one of the 19 people who received a loan (the maximum 200k HTG). An elected CEAC coop director also received a loan (112k HTG). The CEAC cooperative vice president happens to be immediate family of one of the top two CEAC staff (the accountant), meaning that two immediate family members (brothers) hold the #2 position in the cooperative and the #2 position among the CEAC permanent staff. Both are also employed by the local government as assistant mayors. This is suggestively nepotistic influence that we detected simply by looking at the lists, at Facebook profiles, and inquiring; we have no idea the full extent of the nepotism. Two other surnames appear on the loan lists and the CEAC staff or directorships.
g. Non-interference from the former government energy monopoly (EDH), as well as civil, political, and legislative stability.	Holds	EDH, the primary 'threat' to the autonomy of the grid has expressed no interest in controlling CEAC.

243. Drivers are intuitively obvious: opportunities for salaried employment, electric service where there otherwise is non, improved living standards and entrepreneurial opportunities made possible by electric powered labor-saving devices. Overall, they are only weakly in place.

Table 21: Component 1 Infrastructure: Drivers for informing outcomes

Drivers (Numbered to correspond with TOC)	Status	Comments / Evidence
1.1 Paid employment opportunities would induce participation in the project and lead to a successful construction of the grid.	In place but under threat	HSE II has no problem finding eager employees and contractors willing to work learn and perform for pay.
1.2 The opportunity to have and use electricity and the consequential immediate	Mostly in place.	As seen, the rewards of electricity where none is otherwise available continues to drive high desire for people to participate

Drivers (Numbered to correspond with TOC)	Status	Comments / Evidence
improvement in quality of life would encourage people to connect to the grid and to purchase electricity,		in using the grid electric and to pay for it. However, there is very low levels of purchase, ~USD 2.50 per month per household according to CEAC and ~US10 per month according to the survey.
2.1 Improvement in living standards and the existence of new entrepreneurial opportunities would encourage people and institutions to purchase appliances and use the electricity,	Weakly in place	<p>With survey figures ranging from 19% of CEAC households owning refrigerators to 40% owning blenders to 63 percent for televisions, many beneficiaries of CEAC have purchased comfort goods. Overall, CEAC beneficiaries are 8.5 times more likely to own any given major electric appliance than non-CEAC members. However, there are some complicating factors. As discussed elsewhere, CEAC members are clearly better off—far better off—than non CEAC households. They also are more likely to own boats, vehicle and they are more educated. On average CEAC members have 25 percent high level of education (9.5 vs. 7.6 years). Non-CEAC are twice as likely to have not education at all (25% vs. 11%). In short, for whatever reason, CEAC members have significantly high socio-economic status.</p> <p>Secondly, there is little investment in productive technologies: 95 percent of businesses in CEAC households was resale of pre-packaged manufactured items or unprocessed local produce.</p> <p>Moreover, CEAC survey respondents expressed low commitment to supporting the continuation of CEAC. All members are aware of skyrocketing petrol prices, yet 50% of survey respondents indicated that if CEAC went out of operation, they would only be willing to pay less, not more, for any new source of electricity (considerably less, ~USD 15)</p>
2.2 The opportunity to borrow money made available to CEAC cooperative members, makes the purchases of appliances possible even for those who do not have the resources.	Very weak	Only 30% of USD 80,000 available for loans has been given out. Only 19 beneficiaries out of 2,019 CEAC member households.

Table 22: Component 2 CEAC: Drivers for informing outcomes

2.1: Employment incentivizes CEAC staff.	Largely in place	CEAC staff continues to work. They emphasized importance of their jobs. There is no alternative local employee with comparable pay. Staff took significant pay cuts to keep CEAC functioning.
2.2 Training + Loans incentivizes membership participation.	Very weak	Training to staff in the operation of the grid has given way competent technicians and at least functional management.
2.1: Success + member participation in coop leads to better governance + income = sustainability	Not in place	CEAC de facto defunct as a cooperative. The grid is not financially sustainable.

Table 23: Component 3, National Capacity Development, Communication and Policy Products: Drivers for informing outcomes

3.1 Employment and contracts that HSE II provides for training, implementation of courses, seminars, research and policy formation.	Not in place	The outputs related to these outcomes were cancelled (see above).
3.2 Increased popularity and votes to politicians who support SE technologies and new policies	Not in place	The output was cancelled. Nevertheless, investments were made and there is traction in the role that the government (ANARSE and the MTCTC Energy cells) play in promoting renewable energy.
3.3 access to employment for administrators and technicians in the renewable energy	In place	There is increased interest in the energy sector as a source of employment, but this has nothing to do with HSE II, as per above evidence.

244. Gender: The original Prodoc considered HSE II to be gender neutral and the TOCs made no mention of gender. In project revisions gender issues were, as seen earlier, integrated into the mini-grid reconstruction activities, CEAC microcredit initiatives, and SE platform publications and events. Five percent of UNEP and co-finance investment in the loan program was targeted at women headed households. These efforts and the UNEP policy expectation that gender equality be addressed, were included in the reformulated TOC.

Table 24: Assumptions as per the reconstructed TOC at evaluation

Outcomes as per the reconstructed TOC at evaluation	Status	Comments / Evidence
Infrastructure Component Assumption: The purchase of household labor saving devices, particularly laundry machines and water pumps	Partially in place	There is clear evidence that beneficiaries purchased household labor saving devices. As seen above, CEAC beneficiaries are 8.5 times more likely to own any given major electric appliance than non-CEAC members. This includes the major female labor-saving device,

Outcomes as per the reconstructed TOC at evaluation	Status	Comments / Evidence
		washing machines. Thirty-four percent of CEAC hshlds surveyed vs. 7 percent of non-CEAC hshlds have a washing machine. More than 80% of appliance purchases came after the hshld connected to the grid.
CEAC Component Assumption: Females equally represented in cooperative governance and membership and equally educated and competent in cooperative management strategies.	Not in place	Despite allusions to the importance of female participation, there is no evidence that CEAC categorically promoted any meaningful level of female membership or participation in governance. The only female CEAC employee is the secretary.
Equal access to loans for women.	Not in place	<p>Despite EarthSpark recommendations that women receive half of co-finance commitments, only 5 of the 19 borrowers were women.</p> <p>CEAC intended and claims to have extended support to female organizations in the area, but not a single one has, to date, accepted. CEAC leadership explains the reason for this as being that 'they have not decided to accept.' The idea that female organizations is cash scarce rural Haiti are unwilling to accept unconditional economic assistance is difficult to believe. The suggestion is that for some reason, either CEAC does not want to help the organizations, or CEAC did not make sincere efforts to support them.</p>
National Capacity Development, Communication and Policy Products Assumption: The economic opportunities made available with the growth of a national SE economy couple with assured equal opportunity for women to participate in technical training, energy platforms and events will result in increased female representation in the sector and increase access to formal employment for women	Not in place	There never was a clear plan on promoting female involvement in technical and professional SE training. The only task that HSE II proposed was to track female involvement in the sector.

245. Rating for achievement of direct outcomes is *Moderately Unsatisfactory*.

Achievement of Likelihood of Impact

246. In making the transition from outcomes to intermediate states, the same assumptions were applied, as shown in Table 25. In summary, CEAC succeeded in building a grid and in doing so validating the assumption that people want electricity and will use it to improve living standards. The assumption that an electric cooperative can sustainably

govern a grid in Haiti or that any of the other interventions could even be carried out do not hold.

Table 25: Progress towards intermediate states

Intermediate state	Status	Anticipated trajectory
IS 1: Benefits for the beneficiaries are proven and HSE II model is replicated in other departments in Haiti.	Not achieved	The benefits of electric service are demonstrated (see Table 22: Component 2 CEAC: Drivers for informing outcomes). This was in fact project assumption and something that underlies the promotion of electricity everywhere. Moreover, SE micro-grids are being built throughout Haiti. However, what has also been demonstrated by the CEAC experience is that electric cooperatives in Haiti will likely fail. Nor is a microfinance PUE strategy effective as it has been implemented. Overall, the HSE II model can be said to have fallen short in every respect except the actual constructions of the grid—no small performance—and the administrative performance of UNEP, UNOPS, SELF and EarthSpark.
IS 2: Fully self-sustained cooperative, grid operational, 24/7 electric to cooperative members, 2,500 metered connections.	Not yet Achieved	The grid was re-constructed and expanded. It is not 24/7 but rather 13/24 hours per day. There are not 2,500 but 2,019 connections. The cooperative is not now and never will be self-sustainable, not at the energy prices charged currently. The CEAC staff and members all expect CEAC to cease functioning at any time unless an international donor begins subsidizing.
IS 3: National SE market growth supported by a capable national SE workforce & GoH officials independently sponsoring new SE conscient policies and programs	N/A	This component was cancelled, but there is a rapidly growing energy sector. This may be in part due to the international investors, but more influence can be attributed to the recent availability of low cost solar panels and accessories.

247. Based on the costs and the likelihood that CEAC is not sustainable, Rating for likelihood of impact is *Moderately unlikely*.

Rating for Effectiveness : Moderately Unsatisfactory

E. Financial Management

248. Overall, the financial accounting is difficult to understand. The first year of HSE II is omitted from UN Electric budgets. The exchange rate for NOK fluctuates. Expenses were generalized and differences between budgets costs and real expenditures appear in many cases to go unaccounted for. The same is true for cancelled components. While written narratives sometimes mentioned shifted funds, it is difficult to understand how much was lost on cancelled projects and where the remaining funds were re-allocated, if there is any record at all. Accounting prior to the final budget review records budget cost of equipment in lump sums round to the nearest USD 10,000, such as cost of vehicle at exactly USD 40,000, cost of meters at USD 300,000, Power

Supplies are USD 200,000, battery bank USD 750,000. In most cases the final expenditures for the cited equipment exactly the same, something unlikely and that makes one wonder where the difference went. Even the travel budget vs. expenditures comes out as exactly USD 150,000 budgeted.

Adherence to UNEP's Financial Policies and Procedures

249. Both co-Implementing Agency and Executing Agency representatives confirmed the financial management and reporting of the project to have been sound, adhering to UNEP's policies and procedures. Regular expenditure reports (six-monthly and annual) were submitted on time and clarifications addressed. Financial statements for the project were audited annually.
250. Nevertheless, there is a lack of expenditure tracking against project components and work packages. Budgets were developed and maintained per categories of personnel, UNEP and UNOPS support costs, equipment, third party, and travel. Expenditure per component is not available. The best approximation was third-party expenditures/contracts which covered less than 20% of the budgets and the equipment vs, personnel costs. There was some confusion caused by the shift in project management strategy from HSE II management and NRECA participation to UN electric and financial reporting by UNOPS.
251. Rating for adherence to UNEP's policies and procedures is *Unsatisfactory*.

Completeness of Financial Information

252. Reporting requirements included in the original donor agreement for HSE II was UNEP's own standard reporting procedures and a final project report within six months of the termination of the project. The UN Electric agreement, however, called for financial reports within 30 days of the end of each financial quarter and annual interim financial statement.
253. The Quarterly Financial statements were handled by UNOPS. The interim Financial Report were submitted by UNEP. In the documentation provided to the consultant, there is only one financial statement for 2018, three for 2019, three for 2020, and one for 2021 The documents used for evaluation were the Project document, agreements and amendments, Interim Financial statements and ongoing budgets as well as the TOR. No final consolidated and detailed budget was in the provided documents, nor was one provided upon request.
254. The UN Electric agreement called for Interim Financial Statements and Reports within 30 days of the end of each financial quarter as well as annual financial reports. Nevertheless, In the documentation provided to the consultant, there is only one financial statement for 2018, three for 2019, three for 2020, and one for 2021"
255. The evaluation requirements did not call for financial analysis by component.
256. Project shifted funds from the many cancelled components to compensate for shortfalls elsewhere, such as USD 50,000 shift to cover Les Anglais grid shortfall, taken from remaining fund for HEI. These shifts were documented in the budget reporting but without any detail for what exactly the money was used for.
257. It is also difficult to understand what happened with budgets after the end of the project as CEAC provided no documentation. Financial information was clearly and

unambiguously requested from CEAC five times over the period of the evaluation. The documents were never shared. Under UN Electric CEAC consistently had a USD 12,000 monthly operating deficit paid for by the project/ According to the CEAC accountant and the CEAC director, NRECA had covered other operating expenses and left CECA with a surplus balance of USD 69,000 at time of end of project enough to keep CEAC solvent until February of 2022. The details how that money was managed are unknown because, as mentioned, CEAC would not share any accounting documents with the evaluator. Moreover, deficits doubling and tripling since fuel prices increased in January 2022, it's a mystery how CEAC continues to function.

258. Rating for completeness of project financial information is *Unsatisfactory*.

Communication Between Finance and Project Management Staff

259. Communication between the UNEP FMO and UNOPS PMU appear and reportedly were excellent.

260. Frequency of reporting, edits and commentary in the budgets also confirms regular contact between the PM and FMO.

261. Rating for communication between finance and project management staff is therefore rated *Satisfactory*.

Rating for Financial Management: Unsatisfactory.

Table 26: Financial Management

Financial management components		Rating	Evidence / comments
1. Adherence to UNEP/UNOPS policies and procedures		U	
Any evidence that indicates shortcomings in the project's adherence to UNEP or donor policies, procedures or rules.		Yes	Some missing reports, lack of coherence and explanations, no accounting by component.
2. Completeness of project financial information:		U	No final consolidated and detailed budget was in the provided documents, nor was one provided upon request In the documentation provided to the consultant, there is only one financial statement for 2018, three for 2019, three for 2020, and one for 2021
Provision of key documents to the evaluator (based on the responses to A-G below)			
A.	Co-financing and Project Cost's tables at design (by budget lines)	Yes	IDB co-financed Grid reconstruction, PV panels and mounts. Contract was directly with subcontractor SELF

Financial management components		Rating	Evidence / comments
B.	Revisions to the budget	Yes	<p>The overall budget was not revised i.e., two no-cost extensions and one USD 350k extension to cover CEAC USD 12k monthly deficits.</p> <p>Two revisions to the budget were recorded, the last dated 2019. The budget revisions are documented with explanations of variances.</p> <p>The PM confirmed that the budget was continually maintained with support from UNOPS. Also confirmed by records of expenditure reports with provided documents.</p> <p>Tracking of expenditure against technical components is not available for the project.</p>
C.	All relevant project legal agreements	Yes	Signed Agreements with UNOPS and third parties
D.	Proof of fund transfers	Yes	Reported in ICFS
E.	Proof of co-financing (cash and in-kind)	Yes & NO	Verification of IDB co-financing from IDB and SELF performance. Only verification for NRECA in kind contributions comes from Project Manager
F.	A summary report on the project's expenditures during the life of the project	No	Ongoing copies of budgets and ICFS
G.	Copies of any completed audits and management responses (where applicable)	Yes	Only annual interim financial reports and ICFS for 2017 – 2021???
H.	Any other financial information that was required for this project.	N/A	None identified
3. Communication between finance and project management staff		S	
Project Manager and/or Task Manager's level of awareness of the project's financial status		S	Project manager was hands on and prepared and maintain budgets
Fund Management Officer's knowledge of project progress/status when disbursements are done		S	Disbursement requests supported by substantiating information and status updates.
Level of addressing and resolving financial management issues among Fund Management Officer and Project Manager/Task Manager.		HS	Close working relationship and internal cooperation between UN co-implementing agencies yielded seamless financial management and approvals.

Financial management components	Rating	Evidence / comments
Contact/communication between by Fund Management Officer, Project Manager/Task Manager during the preparation of financial and progress reports.	HS	Ascertained in ICFS, interim financial reports, and edits in copies of ongoing budgets

F. Efficiency

262. HSE II was intended to begin in December 2016 as soon as HSE I ended, creating a seamless transition from one project to the next. Because of the extensive damage caused by Hurricane Matthew (October 4th 2016), the originally intended Project Design was modified and submitted for review by October 21st 2016. Revisions were made and the final Prodoc complete with a revised risk assessment table and log frame were submitted. The Project Cooperation Agreement (PCA) was signed and HSE II began on December 6th 2016.
263. Modifications because of the hurricane included a focus on repairing the grids, bringing them back to the level it was before Hurricane Matthew and then expanding the CEAC grid and the number of connections to the originally targeted 2,500 beneficiaries.
264. By September 2017, 650 of the original 1,008 customers were reconnected and the grid was operating for 4 hours in the evenings on the diesel generators. But there were considerable delays. Problems that UNEP and UNOPS attributed to:
- Continued instability and insecurity at the national level, which causes across the board delays.
 - A delay securing USD 1M co-financing from the Inter-American Development bank,
 - Three changes in the UNEP project manager.
 - Difficulties in attracting specialist private sector energy equipment providers to work in Haiti, which resulted in the UNOPS procurement process failing twice.
 - The post project approval withdrawal of the planned primary implementation partner NRECA, who held much of the expertise required to implement the project.
 - The technical complexity of the topic, which demanded a highly technical team, which is inherently difficult to recruit and retain in Haiti.
 - The need for large scale engineering equipment procurement and installation, for which UNEP-UN Secretariat procurement processes was unsuitable.
 - The core project governance objective of creating a functioning energy cooperative (CEAC), something that was proving “perennially challenging.”
265. To address the problems, the project was reformulated in the fourth financial quarter of 2017 under a new entity, UN Electric. The new UN Electric entity was a UNEP-UNOPS partnership in which UNEP took the role of project architect and technical lead and UNOPS led implementation, including the management of activities, project staff, and local level partners. NGO partners have continuing appointments managed by UNOPS, with the following roles:

- SELF – with IDB co-financing of CEAC reconstruction, and installation of hospital PV systems.
 - CEAC – the cooperative with performance motivation integrated into the financial agreement.
 - EarthSpark - Responsible for finalizing Les Anglais grid construction and the gender and PUE components, i.e. researching economic activities, electric tools and appliances that could be purchased to assist with that.
266. The UN Electric model entailed UNOPS taking over NRECA's prior responsibility for specific activities and outputs vs. the standard UNEP-UNOPS global MOU model limited to providing project support services.
267. The new model reduced the steering committee to a tightly working group of project insiders, specifically, UNEP project director and country director, UNOPS corresponding directors and the donor, NMFA, country representatives.
268. UN Electric was adaptive, but there were still significant delays, including what became in total a 24-month delay in securing the planned USD 999,696 co-financing from the IDB, delaying mobilization of the last stages of min-grid reconstruction, upgrade and expansion.
269. Also problematic was deepening political crisis in Haiti and associated non-performance by government electric entities, worsening civil security situation, and the 2020 - 2021 COVID pandemic. Political crisis was in part to blame for non-performance of Port-au-Prince oriented activities, specifically, the national energy platform, HEI (the Haitian Energy Institute), legally hosted by the University of Quisqueya, and elaboration of an existing UniQ graduate course curriculum. HEI proved unable to develop a proposal and team of sufficient quality and relevance to form a partnership. A subsequent search for a substitute partner was unsuccessful. These project components were reduced and changed and/or cancelled. For the logical framework, this meant that the output and associated indicators and milestones were removed. On February 4th 2020, the supplier contracted to supply meters, Hexing, was forced to stop production due to Covid-19 restrictions, causing a three month delay. Installation was further delayed because Hexing technicians could not travel because of the pandemic flight restrictions.
270. The most significant COVID related delay came with the Batteries Energy Storage System (BESS), contracted from the French company Entech, was delayed because of shipping issues associated with the pandemic. However, the batteries were originally scheduled for 2018, 12 to 24 months before the pandemic. In 2021 the manufacturer delayed again because of flooding in France in 2021, custom clearance, land transportation, Haiti security issues, installation and trouble shooting. These later issues were more problematic than COVID complications. BESS installation was not finalized until early 2022, more than 6 months after the project was finalized.
271. Despite all the issues brought on specifically by the COVID pandemic, the delays were not significant. For example, one of the major delays was the mentioned Hexing Force Majeur when it ceased production from March 2020 to June 2020, a delay of three months. In comparison IDB disbursement was delayed for bureaucratic red-tape for 24 months. As seen the BESS were delayed by COVID complications for months, but delayed for more than three years because of other issues.

272. The project duration was originally planned at 38 months (December 2016 to February 2020) but with three extensions took a total of 54 months (December 2016 to June 2021). The three extensions are listed in below.

Table 27: Project Extensions

Amendment to PCA (date signed)	Revised completion date	Motivation for extension
Amendment 1 (Sep 30 2019)	1 Dec 2019 (Extended by 3 months)	The extension because of IDB USD USD 999,696
Amendment 2 (Jan 1 2020)	Dec 1 2020 (extended by 1 year)	No cost extension because of delays associated with COVID 19 pandemic
Amendment 3 (Dec 2020)	30 June 2021	UNEP USD 350,030 Source NMFA, to cover CEAC shortfalls

273. The extensions were justified because of delays in the IDB disbursement to SELF to finalize work on the grid and delays in delivering the battery systems and Chinese Hexing with delivery and installation of pre-pay meters. These latter delays were attributed to pandemic complications, but impact more by other factors (flooding and bureaucratic delays).
274. Gender and CEAC training were completed but in the context of restraints from COVID, it appears they were half-hearted. The executing partner EarthSpark-- whose staff was otherwise helpful and forthcoming regarding the Les Anglais grid--refused to discuss the work. Ostensibly there were meetings with women's organizations in the activity region, and a substandard report was submitted, and recommendations made, see Para 299. CEAC did not adopt any of the recommendations regarding 50 percent loans and claims that women organizations had "not decided" to accept support.
275. CEAC Training (Work package # 8), Gender and PUE (Work package # 9) were meant to be accomplished as Q1 2018. It appears they were paid for in 2018. For example, the Gender and PUE was in the budget report as USD 75k for 2018 and USD 50k in 2019. When COVID 19 hit two years later, neither work package was close to being accomplished.
276. UNEP estimated that CEAC capacity building was only 33 percent accomplished, there had been no general Assembly for 30 months (there was supposed to be one every 12 months) and the CEAC national Director was not in the country and hence supported remotely.
277. The Gender and PUE were 36 percent complete.
278. In short, even though these two work packages involved no supply chains, production, purchases, onerous construction or instalment of complicated software or hard technology, they were delayed by some 3 years.
279. Similarly, it is difficult to understand how these delays are justified in view of the fact that they were in the HSE II budget and that they could/should have been accomplished through the procurement of specialists in these respective fields.

Rating for Efficiency: Moderately Satisfactory

G. Monitoring and Reporting

Monitoring Design and Budgeting

280. There was no separate monitoring budget, not for HSE I or HSE II or UN Electric. Originally, the project was internally monitored by UNEP. Under UN electric, the project was overseen by a board consisting of the UNOPS Country Director, the UNOPS project manager and the UN Environment HSE II project manager.
281. Both UN agencies worked together to monitor activities, both have their own standardized systems for monitoring and evaluation, but oversight responsibility ultimately rested with the Geneva based UNEP team. As seen in the financial section, significant resources were budgeted for monthly travel from Geneva, ostensibly as a monitoring mechanism. The donor NMFA periodically hired their own consultants to evaluate and write report, something that can be seen as fulfilling the function of an objective monitoring mechanism for HSE II.
282. The Project Document contains a Logical Framework with a very limited number of intuitively obvious and easily measured indicators/targets. These measures were appropriate for infrastructural components/work packages, such as 28km of primary line and 2,500 connections for the grid, complete PV systems in 12 clinics. But as they were weak and inappropriate for qualitative tasks such as CEAC training, gender and PUE. The point is born out by the fact that all qualitative tasks—training, governance, Website lessons learned, PUE, Gender—were either cancelled while also losing significant funds (as with HEI and government training and support), or fell far short of intuitive expectations (as with PUE, Gender and the loan program).
283. Data collection methods were vague and with respect to many qualitative task absent altogether.
284. The rating for monitoring design and budgeting is *Unsatisfactory*.

Monitoring of Project Implementation

The project had a detailed workplan. For the first year of HSE II, the workplan was categorized into components seen in

- 285. Theory of Change at Evaluation.** Beginning with UN Electric, the workplan was broken into work packages seen in Table 8: UN Electric Work Packages*.
286. There was no baseline. There was no external mid-term evaluation.
287. Despite specified intentions to claim gender disaggregated data for meetings, there is no evidence this ever occurred.
288. There is no documentation that a HSE II multi-stakeholder steering committee ever occurred.
289. There were annual steering committee meetings between the three partners on November 8th 2017, March 9th 2020, July 9th 2020.
290. Beginning in 2018, infrastructural monitoring and reporting were excellent. The weakness was that these reports effectively tracked and were used to respond to infrastructure work packages, while only paying lip service to qualitative issues, repeatedly noting they were lacking, substandard, not yet completed and, in the end, passing them off as finished when they were in fact never accomplished at all, or rather, accomplished only on paper, as seen elaborated below.
291. The project definitively dropped ball on monitoring and responding to everything non-infrastructural. Specifically, CEAC Training (Work package # 8), Gender and PUE (Work package # 9) Electric Fund design (Work Package 13), see Efficiency.
292. It was known since HSE I that CEAC was the critical component to HSE II sustainability and success. Virtually everyone involved was aware since HSE I that CEAC was problematic and not progressing. But there is little to no data provided—and ostensibly kept—on actual attendance. If they did, it was apparently not very important as it is not discussed in meetings or tracking documents or reports.
293. CEAC was scheduled in 2019 for a UNEP-led capacity assessment review. No information for this assessment was ever provided. Nor did CEAC respond to inquiries about it. UNOPs' staff validated that it 'probably did not occur.'
294. EarthSpark gender and PUE consultancy is another example of the indifference to anything not infrastructural.
295. The sub-component Monitoring of Project Implementation is rated *Unsatisfactory*.

Project Reporting

296. The UN Electric agreement with the donor NMFA, called for narrative report of progress on a semi-annual basis. This was not strictly adhered to, especially in 2017. In the provided documents there were no quarterly reports for 2017. If we only consider UN Electric (Q1 2018 to Q2 2021), there should have been a total of 14 quarterly reports, there were nine; no quarterly reports for the first three quarters of 2018, or the first quarter of 2019. However, there were many narrative reports for 2018, including meeting minutes, a narrative review of the entire HSE project, tracking. In short, while during 2017, there was scant reporting, and there was not a perfect conformance with quarterly reporting, other reporting during 2018 and the quality of that reporting makes it clear that the project was, at that time, being diligently overseen.
297. Project reports and narratives were frequent and exceptionally well done. They were so well done that they captured many of the shortcomings with qualitative tasks and had

they been acted on effectively would have yielded significantly different project outcomes.

298. Third party contract reports were sub-standard. This was particularly true of the PUE and Gender reports and the REC report.

PUE and Gender Reports

299. EarthSpark specializes in energy and gender, justifying their being hired to fulfil the Gender and PUE work package. EarthSpark was contracted for USD 125K, at total of 639 day duration of work (as per UN Electric work plan). It is difficult to believe that a single consultant spent more than 30 days—and perhaps less than 1 week on the consultancy. The report and guidance and research fall far short of any intuitive expectation. Most the information came from other reports and were not relevant to the CEAC activity area.⁵³ EarthSpark submitted two reports:

300. A gender report: Feminist Electrification: Pro-women outcomes in rural electrification projects – CEAC minigrid June 30, 2019
301. A report focusing on encouraging use of electricity: PUE – Productive Uses of Electricity: The implementation of the Productive Uses of Electricity program for CEAC (Coopérative Electrique Arrondissement de Coteaux) members | April – 2020

Feminist Electrification

302. This report was not in the documentation given to the consultant. When asked, EarthSpark refused to share the report, sending the consultant to CEAC and UNEP, neither of which had the report.

PUE – Productive Uses of Electricity:

303. Similar to the gender report there was a striking lack of content:
304. EarthSpark declined to discuss the work, citing confidential and directing the consultant back to UNEP for any questions. It was not until after the Preliminary Findings presentation that EarthSpark sent a copy of the 2018 report to UNEP.
305. The most solid contribution the report made in terms of gender was to declare that:
306. “The effectiveness of the project with respect to gender equity will be measured by considering two indicators: number of women benefiting from microfinance loans, number of women involved in associations funded by CEAC.”
307. The November 2020 HSE/UN Electric cross-cutting risk review referenced EarthSpark and noted that 50% of loans would go to women. Yet, nothing ever came of any of it, not a single recommendation was implemented, not even the 50 percent of loans going to females and none of the specified women’s organizations ever received support from CEAC.

Electric Fund design

308. EPP (Energy Peace Partners) was contracted to provide information for an Electric Fund design (Work Package 13) that would evaluate the possibility of helping make CEAC solvent through the sale of REC (Renewable Energy Credits). The obvious task was to begin with the specific context and challenges in Haiti and answers questions

⁵³ The implementation of the Productive Uses of Electricity program for CEAC (Coopérative Electrique Arrondissement de Coteaux) members |April – 2020)

such as will RECs work in Haiti? How would we work around political instability and corruption? How do we verify?

309. None of the four documents that EPP provided dealt with Haiti at all. They were generic documents, including introductions to international impact investing, introduction to RECs: what they are, their global context and potential for us fragile states (all available on Wikipedia). The reports had nothing to do with Haiti. The word 'Haiti' is mentioned exactly once in the EPP reports, in passing, lumped in with other countries as an example of a 'fragile state.'

Forgotten Issues

310. Apparently forgotten altogether was the USD 100K prenatal medical equipment specified in the Project Document meant to alleviate any gender inequity. What we saw in the Design Review section as a consolation for project designers not identifying gender activities. Nowhere in meeting minutes or progress reports or budgets is any mention of the hospital equipment. UNEP and UNOPS staff never responded to requests for clarification.
311. It is difficult to conclude anything other than that the project staff was more interested in infrastructure, that they were ill equipped to deal with training CEAC as well as gender, and PUE issues.
312. The same indifference can be seen with regard to sharing and lessons learned from the HSE I experience. As of 2019 September progress report HSE II still lacked an online presence. The planned solution was the creation and launch of the UN Electric website, co-financed by UNEP. The site was completed in 2020, as was a CEAC website. To this day both sites present basic introductions and descriptions of UN Electric and CEAC. Nothing more. There is no "long term communication of the knowledge gained from the HSE I and II projects and country specific pages for ongoing initiatives such as CEAC." Nor are there any lessons learned, from anyone.
313. In view of the excellent internal project reporting and despite the deplorable third-party reports, the sub-component Project Reporting score Moderately Unsatisfactory.

Rating for Monitoring and Reporting:	Moderately Unsatisfactory
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H. Sustainability

Socio-political Sustainability

314. As discussed in earlier sections, the government has still not developed a National SE Plan, but there is strong moral support from the government. The government has earnestly supported the new PHARES (Haiti Program for Access to Solar Energy for Rural) plan to construct mini-grids on Haiti's southern peninsula. In the worst case scenario the government will continue to do little to nothing but no interference and no interference anticipated.
315. There is a core group of institutions working in the Far-South of Haiti. Specifically, EarthSpark, EDH, and CEAC. These organizations have different experience, networks and capacities that can be coordinated to provide technological assistance to one another. For example, CEAC and EDH have technicians, experience and equipment for the installation of poles and laying of wire that EarthSpark does not have and hires from

these entities when needed. EarthSpark has developed a strategy of working with minimal resources and technology in remote areas like Les Anglais and Tiburon that CEAC can draw on. EarthSpark also has a network of subcontractors and technicians that could be useful to CEAC, not least of all the Dominican firm fielding SE technicians. There is also strong donor support and interest from the Green Family and IDB. These factors all represent synergistic institutional opportunities that can be drawn on to make draw together the Far-Southern Haiti emerging networks of micro-grids and the organizations that manage them.

316. The rating for Socio-political sustainability is *Moderately Likely*.

Financial Sustainability

317. It was known since HSE I and at design-stage for HSE II that CEAC could not become economically sustainable at current billing rates. The rates of Les Anglais are 2x as high as CEAC rates.

318. By not addressing the costs discrepancy during the UNEP and UNOPS project phase, not only did the design assure that CEAC would at some point have to raise the prices of electricity, they assured that the onus of doing that would fall on CEAC after the UNEP left. CEAC believes that beneficiaries connected to the grid will not tolerate increased prices and the CEAC staff is afraid of the confrontations and possible physical violence that may ensue if they try. Indeed, given the propensity for violent collective action in Haiti, it could result in vandalism and dismantling of the grid.

319. The project anticipated this problem with sustainability and during HSE I introduced a battery rental scheme as a palliative. Sirona battery rentals through the Sirona Cares Foundation, Haiti was intended to be an extra source of income for CEAC. The effort failed, ostensibly because of equipment and because franchisees did not accurately report income. The project had expected 500 franchises but at the end of the HSE I project there were only four.

320. The hybrid grid's dependency on diesel generators for 70 percent of the electricity production and the recent 3x increase in petroleum cost as well as the scarcity in Haiti supplies has meant that CEAC operational deficits have skyrocketed.

321. In the 2017 UNEP-NMFA meeting, the donor (NMFA) requested a CEAC sustainability paper that would include technical options for reducing the operational costs of the CEAC grid with the use of batteries. This study led to purchased and installation of Lithium Ion battery banks, reducing cost of grid operation. CEAC would like to see a further doubling of battery capacity, which would lead to further reduction in need for the diesel generators.

322. It is clear that without new donor support CEAC will not economically survive longer than a few more months from the writing of this evaluation. When donor support to the project ended in September 2021, CEAC had 6 months of operating money in its expense account. They made it to February 2022 on that money. At that point they attempted to offset expenses by dismissing staff and taking pay cuts. Specifically, 2 of 16 employees were released. Pay cuts were as follows: Administrator: 40%, Accountant: 5% Technicians (3): 1%. Technicians began to double as drivers. CEAC staff also reduced trips to purchase supplies: instead of four trips per month to Les Cayes to buy materials, they reduced it to one. Instead of vehicles, they used the one project motorcycle for many tasks. The work trucks are not being used anymore (only

two of five were even functional at the time of the field visit). As a line repair vehicle, the office SUV is used, strapping the ladder to the roof. They allowed the other two office vehicles to fall into disrepair.

323. On top of all the above expenses, short falls, and devaluating equipment, when they are exhausted, CEAC does not and will not have the money to replace the source of 70 percent of CEAC power, the two gensets.
324. The rating for financial sustainability is *Unlikely*.

Sustainability of the Institutional Framework

325. The CEAC cooperative fell short on every aspect of governance. Most of these shortcomings have been touched on in earlier section. A brief review includes: CEAC has not held voting or convened a general assembly since 2017, CEAC does not communicate with members, the leadership is quite literally and admittedly afraid to communicate with members. CEAC did not effectively inform members of the loan program, did not manage the gender activities effectively. CEAC as a cooperative is de facto defunct. The paid staff roles are technical— keeping the power plan and grid functioning. What we learn from the CEAC experience—and what could have been predicted from a cursory reading of the literature—is that electric cooperatives as other cooperatives in Haiti are ineffective.
326. At the core of the failure of the CEAC cooperative is a disjunction between what foreigner donors and development experts consider a cooperative and what the Haitian government and Haitian citizens consider a cooperative. For Haitians, both the common legal and colloquial definition of a cooperative is a lending institution, more akin to a US Credit Union. It is these types of institutions that Haiti's National Council of Cooperative (CNC) was created to oversee. A quick read of the laws that established the CNC is enough to demonstrate that the institution was created to deal with "Savings and Credit Cooperatives (CEC)." Although plagued with its own problems, these institutions enjoy at least moderate success. To a lesser extent word and concept of 'cooperative' has been extended to agricultural 'cooperatives.' These are almost entirely farmers collectives created to aggregate produce intended for export, specifically Cacao, Coffee, and Mangos. The fact that the word "cooperative" is extended to these type of aggregation entities is almost entirely created at the behest of foreign international donors USAID, EU, World Bank, and IDB. For these foreign donors and their consultants, the terms cooperative captures the communal and democratic participation inherent in agricultural collectives. But for Haitians they are termed "associations" and are justified as "cooperatives" because donors always include a microfinance, typically ad hoc and poorly administered microfinance. In the case of Coopérative Electrique de l'Arrondissement des Côteaux (CEAC), they do not fit the Haitian definition of a cooperative. They do not lend. CEAC even passed donor-money slated for microfinancing electric appliances to a Haitian "real" cooperative, CPCS Caisse Populaire de la Cote Sud. This misunderstanding of definition explains why CEAC was the very first Electric Cooperative in Haiti, i.e. because it is not a cooperative to most Haitians and the model was imposed on Haitian institutions eager to please donors.⁵⁴ The point might seem academic except that it is manifest of the gulf that exists between the foreigners who make the decision to work through and

⁵⁴ The US definition of a cooperative is more akin to the Haitian definition of an "Association."

fund a cooperative and the Haitian beneficiaries who gladly accept what strategy donors propose, even when they universally do not understand it.

327. On top of these factors, the second to final quarterly UN Electric report (Q1-2021) recognized that after 8 years of operation, there were issues related to required technical background or leadership for some key positions at CEAC. This recognition basically comes after the fact, in the last closeout meeting for the HSE II.⁵⁵
328. The rating for sustainability of the institutional framework is *Unlikely*.

Rating for Sustainability: Unlikely

I. Factors Affecting Performance and Cross-Cutting Issues

Preparation and Readiness

329. The project was the second of a two-phase project, continuing the same work from HSE I with the same principal co-implementing agencies, UNOP, UNEP, and SELF. NRECA continued to provide support to the project throughout the first years. Experience from HSE I led to decisions on cutting non-performing sub-contractors and continuance with those who were effective.
330. A significant confounding factor was the October 2016 Hurricane Matthew. Destruction caused by the hurricane meant rebuilding 70 percent of the CEAC grid. However, by virtue of experience, the continued presence of EarthSpark and SELF, the capacity was in place to accomplish this, resulting in HSE II and UN Electric effectively accomplishing 80 percent of the targets on infrastructure.
331. There project and a comprehensive project design document that included an annual costed workplan and logical framework. Procurement was at first tasked to NRECA, qualified and experienced in Haiti at procurement.
332. The project identified 15 risks, 7 general, two specific to health clinic PV systems, 6 specific to CEAC and 4 specific to SE CB. They effectively covered all conceivable risks. But many were rated medium when they should have been high risk, some were not really a risk to the project itself, such as cholera epidemic. But overall, it was a well thought risk assessment. Most notable weakness was that it underestimated the historical severity of the political and security issue and likelihood they would deteriorate. To assure that a project works in the Haitian context, it should be as locally self-sustaining as possible. HSE I and HSE II were heavily dependent on procuring resources from outside of Haiti and through UN and not local channels. This was arguably unavoidable, given the high-tech nature of the project. But it still should be considered as a design flaw. Note that while not relevant at this stage, it underestimated the severity of the problems with the government, the likelihood that national partners would not fulfill their commitments, that NRECA would pull out, and that extremity of the security situation. It also, understandably, did not foresee the supply chain issues that would come with the COVID pandemic.

⁵⁵ Quarterly REPORT – Jan 2021 - Mars 2021 Date submitted: April 2021 21013-001 / UN Electric I

333. A representative Steering Committee was continued from HSE II, including state, donor, executing and implementing agencies, albeit the steering committee never met and was replaced with an inter-UN agency and donor board.
334. A comprehensive stakeholder analysis was produced, with the ultimate tasks for engagement with the local community logically planned to be undertaken by CEAC, cooperative that that managed the Couteau grid.
335. Donor and implementing agency agreements were signed in a timely manner. There were delays getting patents and full legal status for CEAC, something that ostensibly was because of bureaucratic inefficiencies.
336. Staffing mobilisation were problematic. The project manager with the project since its planning before HSE I, left at the beginning of HSE II, as did the UNEP country director. The project had a difficult time replacing its project director.
337. The government supports the project and approved the necessary documents, but the government did not and still has not signed a national energy plan.
338. The project leadership responded to PRC recommendations and included remedies in the revised work plan. Execution was not timely, with major delays as discussed elsewhere
339. The period between project approval and first disbursement was less than six months.
340. The rating for Preparation and Readiness is *Moderately Satisfactory*.

Quality of Project Management and Supervision

341. UNEP was the architect of the project and verifying power grid construction. UNOPS mostly responsible for implementation, procurement, and mentoring CEAC.
342. The original director returned and participated in the shift to UN electric. Reporting and progress improved. Under the prior HSE I and UN Electric, the same manager provided extraordinary leadership and adapted to the significant challenges and effective support that was welcomed by project team.
343. The relationship between the PM and UNOP task manager was constructive and effective – this is apparent from inputs on draft reports and interview feedback as well as discussion with the PM and UNOP point of contact. This is most noticeable since 2018, with a significant improvement in the quality of reporting and engagement. Support and engagement was already covered under earlier sections, including Section V. G: Monitoring and Reporting and Section V. E: Financial Management. Failure to respond to evolving policy requirements with respect to environmental and social safeguards and gender, are noted as omissions of supervision.
344. Supervision of the non-infrastructure components was less than satisfactory (see Monitoring and Reporting). The task of mentoring CEAC fell to UNOPS. As far back its origins under HSE I, the CEAC governance was never satisfactory. Recognition of this is present in the minutes of every meeting and in every progress report. For all the discussion and documentation, yet nothing was done to effectively change the situation.
345. Based on the infrastructure management and procurement—and despite shortcomings with non-infrastructure components—the quality of project management by UNEP and UNOPS is rated *Moderately Satisfactory*.

346. Project management and supervision is rated *Moderately Satisfactory*.

Stakeholders Participation and Cooperation

347. The project completed a comprehensive stakeholder analysis at design stage.

348. The project management explained that stakeholder participation at the local level was left to CEAC, which as seen, performed poorly. CEAC did not effectively engage local stakeholders. No documentation was provided for any CEAC stakeholder meetings or engagement. CEAC would not even provide a list of membership. However, as mentoring agency, UNOPS bears the burden of CEAC non-performance. Based on 50 years of documented performance of cooperatives in Haiti, CEAC should have never existed. But at the very least, CEAC should have been corrected or the cooperative strategy replaced while the project was ongoing.

349. Stakeholder participation at the higher level was excellent between the cooperating UN agencies and the donor. Although, through no fault of the project, government participation was weak.

350. The project reported summaries and conclusions for stakeholder meetings. The project also published frequent reports communicating the status of work packages, effectively documenting many shortcomings that should have been addressed but that, in the end, were not.

351. Stakeholder participation and cooperation is rated *Moderately Satisfactory*.

Responsiveness to Human Rights and Gender Equality

352. For a detailed accounting and assessment of the gender shortcomings see Section Monitoring and Reporting, Subsection, Project Reporting, PUE and Gender Reports.

353. Human Rights and Gender Equality is rated *Unsatisfactory*.

Environmental and Social Safeguards

354. The Prodoc noted that an earlier Environmental, Social and Economic (ESE) Risk assessment determined that the grid would have only minor impact and based on that assessment, did not call for a full ESE assessment.

355. Specifically, regarding biodiversity conservation, natural habitats, and sustainable of living, no negative impact was foreseen.

356. The CEAC system only uses lithium or aqueous ion battery bank, which present a low environmental risk. The Design Documents consideration of specific environmental impact and safety was limited to discussion of disposing of batteries and the non-toxicity of PV panels and diesel containment. The diesel tanks are located over 200m from the coast and not adjacent to any waterways or drainage canals. The tanks and generators were determined to meet the original HSE I design standards. The CEAC compound oil storage tanks are located together and spill containment equipment is stored on site.

357. During the field visit, it appeared that CEAC had little regard or awareness of safety, a point illustrated by the figure below, of fire extinguishers discarded in next to the CEAC office.



Figure 9. Discarded fire extinguishers in CEAC yard

358. Regarding other UNEPs Safeguard standards there were no issues of safety, resettlement, indigenous people or issue of cultural heritage. Employment concerns were covered by formal medium term contracts, gender was an issue but is discussed elsewhere (see **Gender**) as was Economic sustainability (see Financial Sustainability) and Project Safeguard process for which UNEP had a permanent team in place for oversight of HSE II and other projects. Ostensibly they monitored the field activities.
359. Environmental and Social Safeguards is rated *Moderately satisfactory*.

Country Ownership and Driven-ness

360. HSE II did fit into the Haiti national strategies and help fill sorely unmet demand for electric power. However, country ownership is poor. The Haitian government was unstable long before and throughout the project. Their role was limited and they did not participate in steering committee meetings. The work packages intended to support the government were cancelled, as was all national subcontractors: the HEI national platform, and the UNIQ graduate courses. Essentially anything to do with national ownership was cancelled or a non-performer. The government maintains its presence essentially in name only and in response to donor solicitation for approvals.
361. As seen CEAC, which represents the local ownership, has performed poorly. The grid would not exist without full international funding and full international involvement in constructing it. It will not survive if an international entity does not take control of the grid and continue to subsidize it.
362. Though no fault of the project, Country Ownership and Driven-ness is rated *Unsatisfactory*.

Communication and Public Awareness

363. Communication outside the project was poor. HEI work package was cancelled. The websites could and should have address the shortcoming but making reports and lessons learned available to the public. Ostensibly, the reports from EarthSpark on gender and PUE would have been valuable tools for other organizations and professionals interested in learning from HSE II. The same is true of EPP report on RECs and the hydroelectric analyses. None of these documents were made available to the public.

364. Communication and Public Awareness: *Unsatisfactory*.

Rating for Factors Affecting Performance and Cross-Cutting Issues:	Moderately Unsatisfactory
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CONCLUSIONS AND RECOMMENDATIONS

Strategic Questions

365. The purpose of all the UNEP investments in energy in the South Department was twofold: 1) Generate practical and lasting benefits for the South Department and 2) Demonstrate and seed fund solutions suitable for replication at a national scale. With these objectives in mind, the evaluation TOC called for the inclusion of four strategic questions of interest to UNEP and to which the project is believed to be able to make a substantive contribution.

366. Strategic Question 1 dealt with achievements of HSE I and lessons learned. Under HSE the CEAC grid and cooperative—together consuming over 80% of the budget—became operational. At the time of Hurricane Matthew, October 4th 2016, two months before the end of HSE I, there were 1,008 households connected, purchasing and receiving electricity. There were 28 km of primary line and 26 km of secondary line, the same as today.

Lessons were learned. Biomass and energy education components, and promotion of solar products had yielded weak results, as had battery rentals. Worsening governance, political and security situation were clear and identified threats. Challenges with the State included inexplicable difficulties with CEAC authorization, and the existence of four competing State entities governing energy— the one that HSE I invested in was cancelled by the Prime Minister in August of 2014. With these experiences, the second HSE II phase of the project was streamlined. Promotion of independent solar household products, sustainable cooking and heating oil were all dropped. The project focused mainly on reconstruction and expansion of the grid, governance through CEAC and support to entities that would help assure future availability of technician. UNEP team decided that the project-based approach used in HSE I was not viable for UNEP, that donors such as World Bank and IDB could better support and guide the project in and opted for a 2019 exit plan.

In response to the hurricane Matthew experience, the project at first planned to prepare for the possibility of future hurricanes by installing improved solar panel ground mounts. It was later decided that this was not necessary. Instead CEAC implemented a system of covering and clamping wooden pallets to the panels when foul weather threatened.

367. Strategic Question 2 asked how beneficial the UN Electric agreement was for the project implementation? What were the challenges inherent to the shift to the UN Electric agreement?

The UN Electric agreement can be thought of as a continuation of adapting lessons learned during HSE I. Many of the threats identified based on HSE I experiences and included in the HSE II risk matrix materialized in the first year of HSE II. Included were complications with the State and the withdraw of the

procurement partner (NRECA) as well as increasing instability and insecurity at the national level. Other complications experienced in the first year of HSE I and that led to the adoption of UN Electric plan were,

- Three changes in the UN Environment project manager
- Difficulties in attracting specialist private sector energy equipment providers to work in Haiti, with the UNOPS procurement process failing twice.
- Demand for specialized PV technicians inherently difficult to recruit and retain in Haiti.
- Need for large scale engineering equipment procurement and installation, for which UNEP-UN Secretariat procurement processes are unsuitable.
- Faltering performance of CEAC
- Significant co-financing dependencies, impacting schedule of the UNEP controlled works (delay in IDB disbursements)
- UN Environment Haiti level team and project manager recruitment and performance issues.

The UN Electric agreement was intended to help resolve these challenges. The tight coordination between the two UN agencies UNOPS and UNEP gave them freedom to quickly cancel and/or change procurement strategies, to fill the CEAC mentoring role in the wake of NRECA withdrawal, and to readily perform internal project M&E. It was an opportunity to cancel contracts nearing default and consolidate tasks under more clearly defined work packages.

368. Strategic Question 3 asked if the changes that UNEP and the donor underwent over the project duration impacted the project implementation? And How? UN Electric was a solution to the challenges and a mechanism for streamlining procurement and decision making.
369. Strategic Question 4 asked what changes were made to adapt to the effects of COVID-19 and how might any changes affect the project's performance?

COVID impacted supply chains, specifically the battery delivery and installation, the meters, and onsite presence of key personnel. The CEAC General Assembly and the Gender study were both delayed, ostensibly because of COVID. There were two project extensions attributed specifically to delays caused by COVID restrictions. However, overall, HSE II very effectively dealt with COVID, continuing work within reasonable time constraints and with enduring limitations on the infrastructure. Adaptions included the project director working remotely from Canada. The company HEX meter technicians set up the metering software system by remotely guiding technicians. Far more problematic were the routine complications of dealing with procurement from within Haiti, government and bureaucratic red tape and apathy.

Conclusions General

370. HSE II succeeded in creating infrastructure that will have lasting benefits for the region it serves, but it fell far short on governance and all other activities qualitative in nature. Benefits of the grid will unlikely be delivered under the CEAC governance model. Rather, the Coteau grid will, at some point, be taken over by a new governing structure. All non-infrastructure tasks associated with HSE II were either cancelled or did not deliver anywhere near the expected results.

371. Successes and intended lessons have to do with the infrastructure, the administrative model and success in rehabilitating and expanding the grid. The dual UN agency administrative structure assured that the grid would get completed. UN Electric effectively managed the withdrawal of NRECA as well as hurdles of government inaction, political instability, and security issues. The project management worked through and largely overcame two major natural disasters: Category 4 Hurricane Matthew in October 2016, two months before HSE II began, the devastation from which was compared by those present to a nuclear bomb; and a 7.32 earthquake in August 2021 that destroyed three of the main hospitals in the activity area. Both disasters direct hit on the HSE II activity area.
372. Even the COVID pandemic and subsequent work stoppages, travel embargoes, and supply chain bottlenecks did not prevent the relatively timely completion of the grid.
373. The lessons learned from governance and third party contracts are almost entirely negative, i.e. what not to do in the future.
374. Indicators and monitoring for qualitative tasks such as CEAC training, gender and PUE, were weak and inappropriate. Reports effectively tracked qualitative tasks and the authors frequently noted that performance was substandard or not yet completed. The project cancelled HEI national platform for disseminating news and research on SE in Haiti. The graduate curriculum contracted through UniQ was also cancelled. The same for activities supporting GoH capacity: cancelled for non-performance.
375. Those qualitative activities that were not cancelled—specifically, CEAC Training (Work package # 8), Gender and PUE (Work package # 9) Electric Fund design (Work Package 13), Websites, the REC report— Electric Fund design (Work Package 13) fell short of expectations.
376. Cooperatives in Haiti have always failed. CEAC was no exception. HSE II never evaluated CEAC competency, as intended. But their transparency can be questioned, evidenced by their refusal to share financial information and membership lists with the consultant. CEAC is not solvent; on the contrary, has always and continue to run deep deficits. CEAC is a 'cooperative' in name only, not having held a General Assembly for five years.
377. The EarthSpark gender reports and PUE report and associated activities fell short of expectations. The reports have little to do with the CEAC activity area or customers. They include only tangential data and reference to the CEAC activity area. Tasks such as a survey baseline for PUE was never conducted. The stipulation of loans to 50 percent of women was not enforced. None of the specified women's organizations ever received support from CEAC.
378. The loan program did not address gender—on the contrary, proactively giving money to males, in many cases for traditionally female owned freezers. It has loaned 1/3rd of the money made available and it went to only 19 of the 2,019 CEAC members; 75 percent of whom knew nothing of the program; meanwhile CEAC staffs borrowing money.
379. The websites did not achieve the goal of sharing lessons learned on disseminating any information beyond the existence of the project.
380. Even the REC report— Electric Fund design (Work Package 13)— from EPP was of questionable value, being entirely about Renewable Energy Credits (REC) at an international level when the biggest question anyone would or should have about

Impact Investing or international credit schemes in a country like Haiti, where political stability and corruption is the norm, is ‘how to deal with that corruption and political instability?’ How to get the money to the intended beneficiaries? How to verify? Was the aim of this report to be an introduction to international impact investing and renewable energy credits, or was it supposed to investigate about their application in Haiti⁵⁶.

381. Although there were many shortcomings regarding non-infrastructure task and governance, the main objective of the project was to construct hybrid electric grids and deliver electricity to populations that had never before had power service. In this, the Project was successful. Both the Les Anglais and the CEAC grids were reconstructed. In the case of Les Anglais the number of new connections far exceeds targets and the grid is arguably the closest model to a sustainable SE grid that currently exists in Haiti. The Coteau/CEAC grid was completed for a length of 26 km and 2,019 of a targeted 2,500 households are connected and receiving electricity. Both grids continue to evolve and adapt. And the impact on the lives of those connected to the grid is indisputable. As seen in Table 28: Household Appliances, a beneficiary of the CEAC grid is on average 10 times more likely than a non-CEAC neighbor to have a major electric appliance.

Table 28: Household Appliances

Appliance/Service	CEAC	Not CEAC
Television	62%	9%
Deep freezer	45%	5%
Cable television	45%	4%
Blender	40%	5%
Fan	31%	4%
Refrigerator	19%	1%
Washing machine	2%	0%

Summary of project findings and ratings

382. The table below provides a summary of the ratings and finding discussed in Section 0. Overall, the project demonstrates a rating of **Moderately Unsatisfactory**.

Table 29: Summary of project findings and ratings

Criterion	Summary assessment	Rating
Strategic Relevance	The project remains highly relevant to all stakeholders	HS
Alignment to UNEP MTS, POW and Strategic Priorities	Aligned with all	HS
Alignment to UNEP Donor/GEF/Partner strategic priorities	Aligned	HS

⁵⁶ The word ‘Haiti’ is mentioned exactly once in the entire EPP report, and then only in passing, as an example of a developing country.

Criterion	Summary assessment	Rating
Relevance to global, regional, sub-regional and national environmental priorities	Aligned	HS
Complementarity with existing interventions/ Coherence	Aligned	S
Quality of Project Design	UN to UN provided effective admin but cooperative model a proven poor choice in Haiti. Opportunistic use of partners not dedicated to tasks set up for failure on non-infrastructure tasks.	MU
Nature of External Context	Extreme political instability and civil unrest	U
Effectiveness		MU
Availability of outputs	Success with Infrastructure vs failure with qualitative components.	MS
Achievement of project outcomes	Same as a above, with CEAC coop jeopardizing most significant success i.e. the grid itself).	MU
Likelihood of impact	Based on the costs and the likelihood that CEAC is not sustainable	MU
Financial Management		MU
Adherence to UNEP's financial policies and procedures	UN conformance with internal norms.	U
Completeness of project financial information	Ongoing budgeting, abundant information.	U
Communication between finance and project management staff	UN to UN, effective.	S
Efficiency		MS
Monitoring and Reporting		MU
Monitoring design and budgeting	Good internal monitoring and budget	U
Monitoring of project implementation	Excellent monitoring of project implementation	U
Project reporting	In view of the excellent internal project reporting and despite the deplorable third-party reports,	MU
Sustainability		U
Socio-Political Sustainability	In view of the much lower than cost price to clients for electricity and improbability that CEAC will or can change it.	ML
Financial Sustainability	Given the poor performance of CEAC	U
Sustainability of Institutional Framework	In view of the solar panels and lithium ion batteries and despite the bucket trucks, the rating for technological sustainability	U
Factors Affecting Performance		MU
Preparation and readiness	Based on the projects satisfactory performance constructing the grid and despite poor performance on non-infrastructure work packages.	MS

Criterion	Summary assessment	Rating
Quality of project management and supervision	Based on the projects satisfactory performance constructing the grid and despite poor performance on non-infrastructure work packages.	MS
- UNEP		MS
- Implementing Partner (UNOPS)		MS
Stakeholders' participation and cooperation	Stakeholder participation was defaulted to CEAC, which was a non-performers. National stakeholders did not participate, through no fault of HSE II.	MS
Responsiveness to human rights and gender equality	Based on the project's performance on Gender and EarthSpark's superficial report and consultancy, CEAC's indifference.	U
Environmental and social safeguards	Based on project reporting and observation	MS
Country ownership and driven-ness	Based on CEAC shortcomings and National government non-participation	U
Communication and public awareness	Based on HEI non-performance and websites not communicating lessons learned or sharing research.	U
Overall Project Performance Rating	(3.11)	MU

Lessons Learned

383. UNEP Evaluation Office had discussions with the initial Project Manager of HSE II about the lessons that were already learned from HSE II prior its Terminal Evaluation. UNEP is not directly involved in Energy Access projects anymore; its focus is now on Energy Efficiency. Energy access and the building of energy infrastructures are better done by others and the private sector especially. Nevertheless, in difficult contexts, UNEP is still involved in energy infrastructures, but with a Technical Assistance role rather than a direct implementor. The UN Peace Operations Rapid Environment and Climate Technical Assistance Facility (REACT) and the Libya Electricity Sector Stabilization and Transition Support (LESST) projects demonstrate this shift.
384. The Project Documents of these two projects also demonstrate a more thorough gender, indigenous and vulnerable groups analysis. It is nevertheless difficult to attribute this to HSE II solely since this is part of UNEP Policy to better consider these aspects in its projects.

Lesson Learned #1:	In order to make a grid financially sustainable, the price of electricity must be pegged at sustainable levels from the outset.
Context/comment:	As seen in sections on sustainability, the price that clients had to pay for electricity should have been enough to make the grid financially sustainable. If not the full cost, then there should have been a plan for long term subsidy of the grid. Moreover, by

	<p>not doing this at the outset, the CEAC was set up for conflict with the membership. Because the grid charged one price while under NRECA and UNOPS management (foreign control), members believe that is the fair and sustainable price. Any suggestion of increase from CEAC staff is seen as unfair and dishonest attempt for them to enrich themselves.</p>
<p>Lesson Learned #2:</p>	<p>In order to make a grid financially sustainable, inflationary mechanisms should be in place.</p>
<p>Context/comment:</p>	<p>Similar to the preceding lesson learned, the price of grid electric should be flexible. Haitian market prices are closely linked to the global economy. More than 60 percent of food staples and virtually all durable goods are imported, mostly from the US, China, and the neighbouring Dominican Republic. This means that when the value of the Haitian Gourde drops, the price of goods necessarily increases across the entire spectrum of consumer goods. The only exception is in cases where the Government controls prices. In this case, because consumers know they can resist, they often do. This was seen in 2018 with gas prices. The Government, long benefitting from control of gasoline and relatively high fixed prices by virtue of fixed-contract and low-cost purchases from Venezuela, found itself losing money when the contract expired and international prices exceeded the fixed cost of petroleum in Haiti. When the government tried to raise prices, the population rioted. The same pattern can be expected with fixed price electricity. The cost of electricity must be linked to the free market and it must be so since the inauguration of the grid.</p>
<p>Lesson Learned #3:</p>	<p>In order to ensure a governance structure, there must be a culturally appropriate institution. Electric cooperatives in Haiti will likely fail. Privatized, social enterprise system is preferable.</p>
<p>Context/comment:</p>	<p>We know from a 50-year history of cooperatives and associations in Haiti as well as evaluations and PhD dissertations focusing on their effectiveness that they will fail. They are undermined by a culture that prioritizes kinship ties and political ties as well as 50-plus years of conditioning to capture aid with no accountability mechanism for those who divert the funds to their own interests, thereby sabotaging any projects that depend on cooperatives for success. The international community has literally supported thousands of them in Haiti. As soon as the international support crumbles, so does the cooperative.</p>
<p>Lesson Learned #4:</p>	<p>In order to assure high quality service, managing entities should be those focused and specializing on electrification; those that become all-purpose charities or branch off into the social sciences and research tend to become less proficient at the task they were created to accomplish.</p>

<p>Context/comment:</p>	<p>CEAC cooperative member training, promotion of PUE, and gender all had little to no impact. The cooperative had no general assembly in the past five years. Most clients know little to nothing about CEAC finances; while the CEAC director himself borrowed from the loan program, only 25% of CEAC members were even aware of PUE loan program existed; only 4% knew who was actually loaning the money. The gender reports and interventions were not of professional quality obviously little effort was made to by the contracted agency.</p> <p>These failings can be attributed to two factors: 1) Implementors moonlighting in areas they were not originally dedicated to performing and/or engaged in alternative undertakings; 2) lack of local knowledge and understanding of Haiti and the local context and history.</p> <p>For example, the PUE was done by EarthSpark staff who are busy fulltime managing their own grid, only shared a baseline from Les Anglais, never conducted a CEAC baseline, despite being paid for one, and who are essentially a CEAC competitor and stands to inherit the CEAC grid when CEAC itself crashes (IDB staff sees EarthSpark as the logical heir to the grid). It's logical to infer from the results that EarthSpark staff were too busy working on their own grid to perform the PUE and Gender consultancy and, in fact, had no professional interest in doing so, other than the money they were paid.</p> <p>NRECA, originally responsible for mentorship of the CEAC cooperative, is a US cooperative adapted to an entirely different population, socioeconomic environment and history than that of rural Haiti. The gulf in understanding is best exemplified by the four CEAC work trucks, highly appropriate for a developed country such as the USA but inappropriate for Haiti where, even in the distant capital, the expertise and parts to repair the trucks cannot be found.</p> <p>UNOPS, which inherited mentorship from NRECA, is a UN agency that, "provides infrastructure, procurement and project management services." It is not an expert in cooperative management and being an organization itself and having Haitian staff does not qualify it or its staff as experts in Organizational Training.</p> <p>A successful project should hire subcontractors with the appropriate expertise and contracted exclusively to deliver services relevant to that expertise.</p>
<p>Lesson Learned #5:</p>	<p>Similar to the preceding, in order to assure results, gender, engagement, organizational training, and dissemination of results and lessons learned should not be "glued" onto infrastructural projects, but rather contracted to dedicated specialists with definitive deliverables, milestones, and verification methods.</p>

<p>Context/comment:</p>	<p>Infrastructure project managers usually are and should be engineers. Making the responsible for contracting and oversight of tasks completely outside their expertise—gender, governance, microlending, websites, education— is ingredients for disaster. Just as we would not task an engineer to supervise medical proceedings, it should not be assumed they will have the interest and expertise to effectively respond to organizational and social challenges. Highlighting the point, every single third-party, extra-infrastructural work package was either cancelled or can be summed up as failure. Specifically 1) national platform (HEI) = cancelled, graduate school curriculum = cancelled, websites = inert, gender and PUE = failed, CEAC governance = failed. All these work packages should have been contracted out to dedicated specialists with a pay per deliverable—as with the infrastructure. UNEP specialists in the respective domains, and not engineers and procurement specialists should have evaluated performance and enforced accountability.</p>
<p>Lesson Learned #6:</p>	<p>Similarly, any dependence on petroleum is a proven ingredient for failure, especially with recent costs skyrocketing. In order to assure financial sustainability, future rural grids in Haiti should be entirely based on renewable energy/locally produced energy source.</p>
<p>Context/comment:</p>	<p>Technology and energy costs are changing rapidly. The costs of petroleum in Haiti and the short lives of diesel gensets is precisely the reason only 30% of the Haitian population has ever had access to electricity. The Haitian population is too impoverished to pay sustainable costs of petroleum generated power. The government is too impoverished to subsidize it. This means that projects that commit to petroleum fuelled power plants will collapse without the continued donor support. But this limitation has changed with SE. Over the life of the HSE I and HSE II, long-lived and low maintenance solar panels and lithium ion batteries have become affordable at a level that makes eliminating diesel generators logical.</p>
<p>Lesson Learned #7:</p>	<p>Local Technology and Expertise is necessary to assure continuity and functional sustainability.</p>
<p>Context/comment:</p>	<p>The most common reason that projects in Haiti collapse is because of technology dependent on expertise and replacement parts that must be procured outside of Haiti, making them costly and, in the common event of political and civil unrest, unattainable. Any project should be as adapted as possible to local technology and local support. This does not mean eschew high technology. Rather, the technology should be as economical, practical and responsive to local support as possible. For example, rather than USD 150K bucket trucks for which expertise in Haiti is scarce to non-existent and/or for which parts are not available in-country, projects should opt for</p>

	<p>a manual ladder and moto-pickup trucks, such as EarthSpark has used on the neighboring Les Anglais grid. Rather than depending on engineers and technicians from the North America and Europe, projects should draw on the closest available technicians, particularly if they are experienced with technology and challenges in an environment similar to Haiti. The obvious source is the Dominican Republic. There are also other sub-contractors in Haiti that have experience similar to that of micro-grids in Haiti, such as the cellular companies Natcom and Digicel, or even EDH itself.</p>
<p>Lesson Learned #8:</p>	<p>Big project models are inappropriate for Haiti. In order to make the most of the funds available for development in Haiti, projects should minimize use of international pay scales and pay local wages.</p>
<p>Context/comment:</p>	<p>The UN is the penultimate international agency. Its employees are highly qualified and educated. They tend to be from elite social classes of their respective countries with corresponding educations and pay checks. Because they are global by definition and representative of all member countries, there is an inclination if not assumed obligation for the UN to pay employees in Haiti on a similar pay scale as it pays employees elsewhere. Doing distorts the local economy and is no guarantee of better performance. To explain: the UN and international NGOs pay local employees at every level ~4x the salaries available in the domestic economy. This practice has created an internal brain drain where the most competent local professionals, skilled and even unskilled labor leave posts with the State to work for the international agencies. For many, it's a first step out of the country. But even for those who stay, it creates unrealistic expectations and attitudes and drains budgets. A UNOPS driver for example, earns an annual USD 10k whereas the same driver will be happy to earn USD 3k in the local economy. This is to say nothing of USD 100 per diems for drivers—an astonishing sum for locals and more than 2x even the international salary. If the goal is to help Haiti develop—and not simply help some Haitians get good jobs—such money is better spent on durable project infrastructure. The same can be said for every level of the project. North American and European engineering consultants are paid USD 10k to USD 15k per month on jobs like HSE II, whereas a Dominican Engineer capable of the same performance, adapted to the island could be hired for the cost of the per diem and travel costs paid to the North American or European.</p>

Recommendations

Recommendation #1:	In order to assure good governance and move closer to financial sustainability, CEAC should be dissolved and the grid given over to a private entity, the obvious candidate being EarthSpark.
Challenge/problem to be addressed by the recommendation:	CEAC does not now and never has functioned as a cooperative. Whether they could work as privatized entity with current staff is doubtful. They are either not transparent or not competent. As seen in the section on Efficiency, CEAC staff would not share financials or membership lists. They are also operating at a significant deficit. It is not clear how CEAC has survived as long as they have. EarthSpark and the Les Anglais grid are also not solvent, but they have come much closer to financial sustainability and they have developed a formula for managing pricing. CEAC should be dissolved and governance of the Coteau grid ceded to EarthSpark.
Priority Level:	High priority.
Type of Recommendation	Project level
Responsibility:	IDB will most likely make decisions about the future governance of the Coteau grid. This is de facto the case and by virtue of available funding and prior involvement
Proposed implementation time-frame:	This should be done as swiftly as possible and with decisive passing of control to a secure governing team. It is unlikely that the grid is still operating. It is unclear how CEAC is paying bills. The current team should be completely replaced to avoid any possibility of losing materials and/or sabotage by disgruntled employees.
Recommendation #2:	In order to assure 3 rd party performance, UNEP should put a policy in place whereby infrastructural experts and management focus exclusively on infrastructure and separate team of experts take exclusive responsibility for organization and governance building, education & training, as well as gender components. They should be dedicated specialists and not entrepreneurial NGOs opportunistically trying to capture funds by virtue of their proximity to the project.
Challenge/problem to be addressed by the recommendation:	Virtually every non-infrastructural task associated with HSE II was either cancelled or failed. Causes include contracting distant entities in Port-au-Prince as with HEI and UniQ, contracting local infrastructural entities (EarthSpark) that are de facto competitors with CEAC but conveniently nearby and have opportunistically expanded into social engagement activities attractive to donors. The same can be said for using UNOPS, a procurement and project development agency, as a mentoring organization for CEAC. All the failures associated with HSE II can be ascribed to opportunistic use of organizations present and willing to take the funds for tasks that they are either not suited, not dedicated and experienced, or that conflict with their other commitments and goals. All these task should be contracted to

	organizations specifically dedicated and skilled in the domain and not those that are opportunistically capturing work because they happen to be in the vicinity.
Priority Level:	High priority.
Type of Recommendation	UNEP-wide
Responsibility:	UNEP
Proposed implementation time-frame:	This should be done as swiftly as possible to avoid similar shortcomings.

ANNEX 1: RESPONSE TO STAKEHOLDER COMMENTS
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Table 30: Response to stakeholder comments received but not (fully) accepted by the reviewers, where appropriate

Page Ref	Stakeholder comment	Evaluator(s) Response	UNEP Evaluation Office Response
	CEAC never refused to send financial report and members list. During this period, we have more difficult to work in CEAC, like gas problem from July end to October 2022 and communication in creole email send by Tim. We waited Mr Tim to recuperate in office. If it's necessary, before report final, we are disponsible to share these information.	I think the stakeholders comments validate the critique. We are talking about a member list and basic financials, two items that should be readily available and transmissible as an email attached. Nevertheless, giving them the benefit of the doubt, to this moment, the evaluator has only received additional claim that the data is/was available or is/was forthcoming. If the data was/is available, and the stakeholder is/was disposed to share it, the appropriate response was/is to send the data, which the stakeholder still has not done.	There might have been a confusion between the CEAC staff and the Evaluation consultant. The field mission of the consultant lasted 8 days. After that the consultant was not in the country and could not recuperate the documents in office. The Evaluation Process has already been delayed and extended. It is now too late to include this information in the Evaluation Report.
Para 43	Can there be a clarification of this paragraph to enable UNEP to respond accordingly. As it is, it may be misleading to the audience and this cannot stand unless specific cases are mentioned.	The lack of specific cases is the problem. Specifically, 1) budgets costs and real expenditures appear "in many cases" go unaccounted for (I did not find any cases where there were detailed budgetary explanations for the differences, none), 2) same is true for cancelled components, i.e. how much was lost on cancelled projects and where the remaining funds were re-allocated, if there is any record at all. Budget costs of equipment was in lump sums rounded to the nearest USD 10,000, such as cost of	Several emails were sent to the FMO to have access to consolidated and detailed budgets for the whole project lifespan. After 5 months, what was shared in the end was a document entitled "Interim Certified Financial Statement for the period ended 31 st

Page Ref	Stakeholder comment	Evaluator(s) Response	UNEP Evaluation Office Response
		<p>vehicle at exactly USD 40,000, cost of meters at USD 300,000.</p> <p>So the point really was not that there are some cases that are as described. I was softening the critique. I found no documents explaining where the differences went. Ideally, there should be some summary ledger with this information.</p> <p>= No final consolidated and detailed budget was in the provided documents, nor was one provided upon request.</p>	<p>December 2021" mentioning the Total project expenditures and available balance with no details per year or component.</p>
Para 251	<p>Does this relate to UNEP Branch or Implementing Partners (IP) (which could have been UNOPS as the sole IP for the project or CEAC that was contracted by UNOPS as an IP for the project) or which entity? This needs clarification before it can stand.</p> <p>I think there needs to be a distinction on these and especially when a procurement is involved that has been highlighted by the report</p>		<p>The Adherence to UNEP's Financial Policies and Procedures evaluation criterion assesses the application of proper financial management standards and adherence to UNEP's financial management policies.</p> <p>The financial documents provided to the Evaluation Consultant show a weak application of proper financial management standards. For instance, it was not possible to fully understand how the funds of cancelled components were reallocated.</p>

Page Ref	Stakeholder comment	Evaluator(s) Response	UNEP Evaluation Office Response
Para 30	As a counterpoint, the modest funding from the project that had supported EarthSpark International's energy access work seeded two microgrids in the region that are generally regarded as well-functioning and that are the basis of a significant scale-up effort through the Government's PHARES program for microgrid development	I'm not sure what is the point. HSE II did fund 2 grids. Or rather, HSE II funded the reconstruction of the Les Anglais grid referring to it as a model for scale up. But HSE II model for scale up was not the Les Anglais grid. Nor did HSE II designed the Les Anglais grid. The HSE II model was the UNEP designed and CEAC governed grid. To say different would be to shift the entire scope of the evaluation to include Les Anglais. That would be good for the HSE II evaluation because Les Anglais has a more appropriate model and avoided several of the pitfalls of CEAC grid, not least of all the cooperative itself, but also including the heavy reliance on diesel. But it's not what HSE II was... I was not told to evaluate the Les Anglais grid and HSE II staff were very clear about not having anything to do with Earthspark operations. HSE II only gave the money for reconstruction.	
Lesson learned #5	This is inconsistent with what EarthSpark has found in nearby microgrids.	It's hard to see Earthspark as an unbiased authority on the matter as they are "gluing" gender, engagement, and organizational training onto their infrastructural projects, and in doing so capturing additional income. As for the data from CEAC, yes, it worked very well for Earthspark. They received an additional USD 150K from the HSE II project. Putting that into perspective, it is 75 percent of the USD 200k that HSE II gave Earthspark to rehabilitate the Les Anglais grid. But there is little to show for that. That USD 150k did next to nothing for the beneficiaries of CEAC, for	

Page Ref	Stakeholder comment	Evaluator(s) Response	UNEP Evaluation Office Response
		<p>whom it was ostensibly intended. Earthspark depended almost entirely on data from their own activity area to write the report.</p> <p>Also, I'm a bit skeptical about comparing Earthspark to CEAC/HSE. Earthspark operates as a private enterprise, not a cooperative. So while they may have organization and gender training, they are incidental to the Earthspark operational model, which is a more appropriate strategy.</p>	
Recommendation #2	Again, this is in conflict with EarthSpark's experience.	<p>See above, to which I would add that, 'feminist electrification' aside, I need little convincing that Earthspark has a superior operational model. It's the notion of feminist training and cooperative formation that I am saying should not be glued onto the projects. And prima facie I would say something is wrong with singling women out vs men for special training in use of electricity. Are women in rural Haiti significantly disadvantaged in access to electricity vis a vis men? Did men already have electricity and women didn't? Are men dominating access to new electricity to the detriment of women? Is there a gender war in rural Haiti? Do women see themselves as pitted against their spouses? Will successful 'feminist electrification lead to the need for "patriarchal electrification" campaigns? Earthspark might be convinced they've answered these questions affirmatively. I don't see that data anywhere. I just see rhetoric.</p>	

Page Ref	Stakeholder comment	Evaluator(s) Response	UNEP Evaluation Office Response
Para 63	<p>Did The Earth Institute really not conduct these? It seemed like they surveyed absolutely every aspect of Port-a-Piment before the project launch. Or is this just referring to HSE II? If baseline was established at the beginning of HSE I, that is likely relevant. The issue may be that the handoff of baseline data across partners was mismanaged.</p>	<p>The Earth Institute did a baseline for HSE I. But when it was done there was no electricity in the region, or at least none was detected.</p> <p>So it stands to reason that EarthSpark would do another, new baseline focus specifically on that topic, use of electricity, and in the CEAC area (which was done in Les Anglais).</p> <p>EarthSpark reports contain no discussion and make no references to Earth Institute reports or data. As for whether or not a baseline was expected, I really do not know, but EarthSpark seemed to think so. In the 2019 Gender report submitted to HSE II/UN Electric, table 4, Feminist Electrification Action Plan Framework, a column for Baseline 2019 and Baseline 2020 was mentioned. I don't understand exactly what this means as it claims that 2019 is TBD and 2020 is completed (but we know from the report there is no baseline).</p> <p>Was a baseline needed? A "baseline" could be many things. From the documents that Earthspark provided, seems they mean a qualitative study of PUE... I'm not even sure. But I do know from my own short experience in the region that there are craftspeople in the CEAC area who need electricity and make very productive use of it. Moreover, a proper PUE study would have made connections between such issues as the fishing industry, the conspicuous role women play in marketing fish, the concurrent investments</p>	

Page Ref	Stakeholder comment	Evaluator(s) Response	UNEP Evaluation Office Response
		<p>being made in FAD (fishing aggregating devices) and boats and fishing gear and the likelihood that industrial ice machines could have had a revolutionary impact on income for the region. It could have suggested other commercial uses of electricity and helped target the loan program to them, such as small garment and artisanal factories. It could have highlighted the value of reaching out to programs such as Ethical Fashion Initiative and Caribbean Crafts making connections that would capitalize on the availability of electricity and bring income into the area. Instead, with no real PUE, all the loans went to refrigeration for beverages, fans, and lighting, all non-productive activities that may make life more comfortable but do nothing to make electricity productive.</p>	
Para 118	ANARSE didn't exist until 2016	<p>ANARSE was created in February 2016. HSE II was approved 10 months later, in December 2016. The steering committee included the GoH. ANARSE is GoH. ANARSE is referenced in the ProDoc and in minutes from meetings. I do not know about the details of who was on top with the GOH. There is discussion in some project documents about the confusion in the government, part of the reason for dropping them from the steering committee. CEAC dropped GOH from the steering committee and have had any impact otherwise.</p>	
Para 211	This has been true in the past, however the paradigm has shifted. Microgrids that explicitly plan for electric cooking loads can solve both	<p>I know that EarthSpark is working on this. The EarthSpark staff met in Les Anglais told me about their experiments. One day, yes, perhaps it will be</p>	

Page Ref	Stakeholder comment	Evaluator(s) Response	UNEP Evaluation Office Response
	<p>sides of SDG7. Please update your text by saying that the current levels of generation and service provision will not displace charcoal. (Additional info: https://www.earthsparkinternational.org/clean-cooking.html and https://mecs.org.uk/wp-content/uploads/2020/11/Cooking-with-Electricity-A-Cost-Perspective.pdf)</p>	<p>more efficient to use electricity to cook. And that day will likely deal a terrible blow to the poorest and most vulnerable rural Haiti. That's an even issue that I was hoping not to get into. Charcoal is the rural Haitian social security net. Save the trees and if we don't find a way to replace charcoal as a safety net there may not be any people to worry about.</p>	
Table 23	<p>The support to EarthSpark led to EarthSpark's ability to continue to serve as an example of a functioning microgrid and to continue to advocate for further solar+storage minigrid infrastructure.</p>	<p>My understanding based on the project docs and speaking with the UNEP and UNOPS project directors is that the money HSE II gave to Earthspark was for 1) the grid and 2) CEAC gender and PUE consultancy. Whether or not the USD 150k that Earthspark got for the consultancy went to some other good use is not in the scope of the evaluation.</p>	
Table 24	<p>Support to EarthSpark enabled EarthSpark to continue promoting its "Feminist Electrification" approach to microgrid development. EarthSpark's planned scale-up in microgrids will likely significantly increase women's role in rural energy provision.</p>	<p>HSE II does not automatically get credit for the growth of the SE economy in Haiti. Of course, it grew. And of course gender participation grew. HSE II itself is consequence of the growing SE economy. Did HSE II activities improve gender representation in the sector? I would need evidence that HSE II had impact. The work package was canceled and I see no results. Is EarthSpark claiming its own gender activities are proof of HSE II contributions? HSE II contributions to EarthSpark outside of CEAC were not part of the CB work packagers. Perhaps there is misunderstanding.</p> <p>My understanding is that EarthSpark was given USD 200k to rebuild the Les Anglais grid. That was all infrastructure. And then it was given another USD</p>	

Page Ref	Stakeholder comment	Evaluator(s) Response	UNEP Evaluation Office Response
		150k to do gender and PUE consultancy for CEAC, in the CEAC activity area. That's what I understood from the work packages, scopes of work. Even EarthSpark own reports. It seems that EarthSpark is saying that HSE II money was also for their Les Anglais activities.	
Para 274	Sorry if I was contacted on this and didn't respond. I wasn't aware this was a gap in data gathering. Neither Wendy nor Jean, who were interviewed for this project, were directly involved in these studies. It also seems like there was a miscommunication around the reports themselves. EarthSpark staff acted in line with EarthSpark policy of client confidentiality and deferred to UNEP to provide the report to the evaluating consultant.	See comment below about the confidentiality topic	
Para 302 and 304	<p>This seems like strange wording. EarthSpark respects confidentiality of its consulting clients and does not provide copies of reports to third parties without permission and direction from the client. It may be more telling that the reports were not findable by the CEAC and UNEP teams.</p> <p>EarthSpark declined to discuss the work, citing client confidentiality and directing the consultant back to UNEP for any questions. When UNEP reached out to get a copy of the report, EarthSpark sent it quickly to the team.</p>	<p>I was not a random "third party," I was the UNEP evaluator. I was working for UNEP.</p> <p>UNEP introduced me, there were many email exchanges with UNEP cc'd, UNEP sent me to Les Anglais where I introduced myself and spent several hours with EarthSpark staff and they shared lots of information with me, openly, with no hint of confidentiality.</p> <p>There were more email exchanges after word, all including UNEP.</p> <p>CEAC and UNEP were also included in the requests. Nobody seemed to have the report.</p>	

ANNEX 2: PEOPLE CONSULTED DURING THE EVALUATION
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Table 31: People consulted during the Evaluation

Organisation	Name	Position	Gender
UNEP	Andrew Morton	Former Project Manager	M
UNEP	Fabien Monteils	Directeur UNEP, Haiti	M
UNEP	Paul Obonyo	Financial Mgmt Officer, UNEP	M
UNOPS	Ronald Louis	Project Manager UNOPS, HTOC	M
CEAC	Charlot Adiley	Director	M
CEAC	Phedo Lubin	Membre Conseil Admin.	M
Coteau & CEAC	Severe Valsonne	Account & Adjunct Mayor	M
CASELI	Agro Patrick	CASELI	M
EarthSpark International	Wendy Sanassee	Director of Haiti Operations	F
EarthSpark International	Jean Thaylord	Microgrid Operations Manager	M
ANARSE	Caliste Evenson	Directeur de l'ANARSE	M
ANARSE	Paul Huguens Tarte	Ingenieur de l'ANARSE	M
IDB	Christiaan Gischler Blanco	Energy branch - chief	M
IDB	Thys, Pierre Kenol	Senior Engineer, Haiti sector	M
IDB	Vanegas Rico, Wilkferg	Energy Specialist	M
Port a Piment hospital	Chamane	Guard	M
Damassin clinic	Murielle Anne Miralande	Directrice Damassin clinic	F
Coteaux Hospital	Janvier	Coteaux Hospital manager	M
Coteaux Hospital	Director (unnamed)	Coteaux Hospital	M
Roche-a-Bateau Hospital	Nurse/Catholic Sister (unnamed)	Roche-a-Bateau Hospital	F
Chardonniere Hospital	Nurses/Catholic Sisters/ Maintenance personnel (unnamed)	Chardonniere Hospital	FFFM

Organisation	Name	Position	Gender
Les Anglais Hospital	Security guard (unnamed)	Les Anglais Hospital	M
SELF	Claudalex Lauture	Engineer associated with SELF	M
EDH	Edouard Laurole	Former financial director	M
CASEC Coteau	Boss Michel Cheri	CASEC group Coteaux	M
ASEC Coteau	Silvestre Marcel	ASEC Coteau	M
ASEC Coteau	Frego	COTEAU ASEC associate	M
Coteau	Violette Moise Francois	Adjunct Mayor	F
CPCS (Caisse populaire de la Côte Sud)	Vital Michel	Director	M

ANNEX 3: KEY DOCUMENTS CONSULTED

	Document Title	Author(s)	Date effective
1	Haiti Energy Sector Development Plan 2007 - 2017 Ministry for Public Works, Transportation and Communications. Bureau of Mines and Energy Electricity of Haiti, with the technical assistance of the International Atomic Energy Agency) *	MTPTC	2006
2	CN W005 -Haiti Southwest Sustainable Development Program	EI	2011
3	CSI_Haiti final 031114	EI	2012
4	UN Environment Medium Term Strategy 2014-2017	UNEP	2013
5	IFC-Sponsored E-Power Plant Kicks Off Operations in Haiti to Increase Energy Capacity	IFC	2015
6	Final_Reports-_Millennium_Villages_2015	EI	2015
7	THE HAITI SUSTAINABLE ENERGY PROGRAMME Increasing energy access in Haiti and supporting new solutions to energy poverty	UNEP	2015
8	Project Document 223.7 Haiti Sustainable Energy II.	UNEP	2016
9	Condition Assessment of the Service Area and the Electricity System at Coopérative Electrique de l'Arrondissement des Coteaux (CEAC). October 24th 2016	NRECA	2016
10	Project Document 223.7 Haiti Sustainable Energy II	UNEP	2016
11	ARNSE Decrets Fev 2016 Secteur Energie	ARNSE	2016
12	Final Project Report to the United Nations Environment Programme Feb. 2017. Project Account Number: AE/3020-12-60 UNEP/PCA/DEPI/2014/PCDMB/024	SELF (Solar Electric Light Fund)	2017
13	Cross-cutting Risk Review HSE II	UNEP	2017
14	Assessment of Haiti's Electricity Sector.	Boston University Institute for Sustainable Energy Stuebi, Richard and Jennifer Hatch.	2018
15	Haiti Sustainable Energy II Project Document Revision 1 September 2018	UNEP	2018
16	Project Narrative	UNEPS	2018
17	FINAL-Haiti-Electricity-Report-March-2018	UNEP	2018

	Document Title	Author(s)	Date effective
18	UN Electric Agreement Amendment 03 - Annex A	UNEP	2018
19	THEORY OF CHANGE FOR OFF-GRID SOLAR UPTAKE IN EMERGING ECONOMIES – A Means to Identify Drivers and Barriers, and Develop Appropriate Interventions by B.	KYLE M. KARBER	2018
20	UN Electric Work Plan_ revised	UNEP	2018
21	Assessment of Haiti's Electricity Sector.	Boston University Institute for Sustainable Energy	2018
22	UNOPS Quarterly Report for UN Electric I. January 2021 to March 2021. Submitted April 2021.	UNOPS	2021
23	Work Packages Quarterly Report Q1-21	UNEP	2021
24	Prodoc HSE II	UNCEP	5-Dec-16
25	HSE I final narrative report	UNEP	6-Apr-18
26	UN to UN Agreement UN Electric	UNEP	May-18
27	HSE II Prodoc Revision 1 Risk Table & LogFrame	UNEP	Sep-18
28	Haiti Sustainable Energy South II (HSE II). Project Updates for	UNEP	Jun-21
29	United Nations Environment Programme The Haiti Sustainable Energy Programme: Increasing Energy Access in Haiti and supporting New Solutions to Energy Poverty. https://wedocs.unep.org/20.500.11822/17742 .	UNEP	2015
30	Budget UNE Electric - Haiti	UNEP	2018-2019 (8 March 2018)
31	Haiti Sustainable Energy-South Department NMFA Project Final Report. Reporting Period: September 2012-December.	UNEP	2017
32	Quarterly and Progress Reports	UNEP	Dec 2016-Present
33	Amendments	UNEP	Dec 2016-Present
34	A_PAPIM_Baseline_Final	CSI/EI	2012
35	UNEP 2015 THE HAITI SUSTAINABLE ENERGY PROGRAMME Increasing energy access in Haiti and supporting new solutions to energy poverty.	UNEP	2015

	Document Title	Author(s)	Date effective
36	IDB Programme d'Urgence en Réponse à l'Ouragan Matthew HA-L1130. Accord de Don N°3882/GR-HA. Rapport d'Achèvement de Projet (PCR)	IDB	2021
37	UNEP Interim Certified Financial Statement covering January to 30 Sep 2017	UNEP	2017
38	UNEP Interim Certified Financial Statement covering January to 31 Dec 2017	UNEP	2017
39	UNEP Interim Certified Financial Statement covering January to 31 Dec 2017 to Aug 2018	UNEP	2017-2019
40	UNEP Interim Financial Statement for period ending 31 March 2019	UNEP	2019
41	UNEP Interim Financial Statement for the period ending 10 September 2019	UNEP	2019
42	UNOPS Interim Financial Statement 30-Sep-2019	UNOPS	2019
43	UNOPS Interim Financial Statement 31-Dec-2019	UNOPS	2019
44	UNEP-UNOPS Certified Financial Report and Interim Financial Report 30 June 2019	UNEP-UNOPS	2019
45	UNOPS Interim Financial Statement 30-Sep-2020	UNOPS	2020
46	UNOPS Interim Financial Statement 30-Dec-2020	UNOPS	2020
47	UNOPS Interim Financial Statement 31 Mars 2021	UNOPS	2021
48	UNOPS Interim Financial Statement 31 Jul 2021	UNOPS	2021
49	UNOPS-UNEP FA Nov2017	UNOPS	2017
50	Copy of UNEP - HSE budget 2017_	UNOPS	2017
51	Budget UNE Electric - Haiti 2018-2019 (rev 8 March 2018)	UNEP	2018-2019
52	Copy of budget 2019-02-01 Budget UN Electric (commitments and projections)_GitaEBVL	UN Electric	2019
53	Copy of 2019-04-07 Budget UN Eelctric_v09	UN Electric	2019
54	Copy of 2019-12-02 Budget UN Electric	UN Electric	2019
55	Copy of Budget UN electric - Haiti 2018-2019 (commitments and projections)	UN Electric	2018-2019
56	Copy of Budget UN Electric 2018 (commitments and projections)	UN Electric	2018
57	Copy of Budget UNE Electric - Haiti 2018-2019 (rev 01) 29 Jan2018	UN Electric	2018-2019
58	Copy of Budget UNE Electric - Haiti 2018-2019 (rev 01 March 2018)	UN Electric	2018-2019
59	Copy of Budget UNE Electric - Haiti 2018-2019 (rev 21 March 2018) (002)	UN Electric	2018-2019

	Document Title	Author(s)	Date effective
60	Copy of HSE II Exp 29Aug18 AM edits	UNEP	2018
61	Copy of HSE II Exp 29Aug18 AM edits II	UNEP	2018
62	Copy of Copy of 2019-12-02 Budget UN Electric - UNEP PM inputs	UNEP	2019

ANNEX 4: BRIEF CV OF THE EVALUATOR

Name: Timothy T Schwartz

Profession	Cultural Anthropologist
Nationality	USA
Country experience	<ul style="list-style-type: none"> • Haiti • Dominican Republic • Mexico • Grenada • Democratic Republic of Congo • Kenya • Afghanistan
Education	<ul style="list-style-type: none"> • Ph.D. Anthropology: University of Florida, (emphasis on economics & research methods) • M.A. Anthropology: University of Florida (emphasis on statistics, demography and environment) • B.A. Anthropology: University of Florida (emphasis on statistics & linguistics)

Timothy Schwartz, a US PhD in anthropology with special emphasis in statistical field methodology. Schwartz has conducted evaluations for IFAD, WFP, ITC, OCHA, UNICEF, and UNCESCO as well many International NGOs and parastatal organizations, organizations. He has designed and coordinated social surveys and focus groups in the Dominican Republic, Democratic Republic of Congo, Kenya, Cameroon, Ghana, Burkina Faso, and Afghanistan. with special research focus on Haiti. He has written three books, one specifically focusing on Haitian livelihood strategies and two focusing on the complexities of achieving successful development interventions in Haiti.

ANNEX 5: EVALUATION TORS (WITHOUT ANNEXES)

TERMS OF REFERENCE

Terminal Evaluation of the UNEP PIMS 01968

“Haiti Sustainable Energy II (HSE II)”

Section 1: PROJECT BACKGROUND AND OVERVIEW

1. Project General Information

Table 1. Project summary

UNEP PIMS ID:	01968		
Implementing Partners	UNOPS, CEAC, EarthSpark, SELF, CalCEF-EPP		
Relevant SDG(s) and indicator(s):	<p>SDG 7. Ensure access to affordable, reliable, sustainable and modern energy for all</p> <p>Target 7.1: By 2030, ensure universal access to affordable, reliable and modern energy services.</p> <p>Target 7.2: By 2030, increase substantially the share of renewable energy in the global energy mix</p>		
Sub-programme:	Disasters and Conflicts	Expected Accomplishment(s):	EA 2b) The capacity of countries to use natural resource and environmental management to support sustainable recovery from natural and man-made disasters is improved. Indicator. Percentage of countries affected by natural and/or man-made disasters that progress at least one step in four of six categories in the country capacity framework for natural resource and environmental management, with the assistance of UNEP.
UNEP approval date:	December 2016	Programme of Work Output(s):	PoW 2016-2017 PoW 2018-2019 PoW 2020-2021
<i>Expected</i> start date:	December 2016	Actual start date:	December 2016

<i>Planned</i> operational completion date:	December 2019	Actual operational completion date:	June 2021	
<i>Planned</i> total project budget at approval:	USD 4,618,938 ⁵⁷	Actual total expenditures reported as of June 30, 2021:	USD 5,231,730.21	
<i>Planned</i> Environment Fund allocation:	USD 0	Actual Environment Fund expenditures reported as of June 30, 2021:	USD 0	
<i>Planned</i> Extra-Budgetary Financing:	USD 1,500,00	Secured Extra-Budgetary Financing:	To be confirmed	
		Actual Extra-Budgetary Financing expenditures reported as of [date]:	To be confirmed	
First disbursement:	USD 1,173,571 (i.e NOK 10,000,000 delivered in December 2016)	Planned date of financial closure:	30 June 2022	
No. of formal project revisions:	2	Date of last approved project revision:	December 2020	
No. of Steering Committee meetings:	1	Date of last/next Steering Committee meeting:	Last: 28/11/2017	Next: N/A
Mid-term Review/ Evaluation ⁵⁸ (<i>planned date</i>):	Q1 2018	Mid-term Review/ Evaluation (actual date):	N/A	
Terminal Evaluation (<i>planned date</i>):	September 2019	Terminal Evaluation (actual date):	November 2021 – May 2022	
Coverage - Country(ies):	Haiti	Coverage - Region(s):	Latin America and Caribbean	
Dates of previous project phases:	PIMS 1550 "Haiti Sustainable Energy: South Department Norway Ministry of Foreign Affairs project (HSE I)" 2012-2016	Status of future project phases:	N/A	

2. Project Rationale

In the early 2010s, only 12-25%⁵⁹ of the almost 11 million Haitians had access to regular electricity, which was one of the lowest electrification rates in the world (the lowest in the American region). In addition, more than 65% of the total electricity production was lost due to

⁵⁷ Last approved budget as per Revision No. 2 = USD 5,264,484

⁵⁸ UNEP policies require projects with planned implementation periods of 4 or more years to have a mid-point assessment of performance. For projects under 4 years, this should be marked as N/A.

⁵⁹ Officially, 12.5% of the population had access to energy, but it was estimated that this number raised to 25% including illegal connections (Ministère des Travaux Publics, Transports et Communications, 2009).

technical inefficiencies or used by Haitians unwilling or unable to pay or who pay on the black market. Energy poverty is a well-recognized constraint to the development of Haiti.

At that time, there was still no national grid in place, only a few regional grids managed by Electricité d'Haiti (EdH) and a number of mini-grids powered by diesel generation. The regional grids were unreliable, poorly managed and practically insolvent and generally only covered major town centres. Consequently, a majority of the population in both rural and urban settings was forced to use other, less efficient and often more expensive, power alternatives such as kerosene, charcoal and candles along with portable diesel generators.

Haiti's energy sector had long been neglected and was severely underdeveloped and unsustainable. The widespread issues with energy and electrification had long been recognized by the Government of Haiti (GoH) and international organizations and hence, GoH launched a series of national-level policy papers and outlined strategic priorities for legislation, capacity-building and practical initiatives. In 2011, GoH issued a "Rural Electrification Strategy Paper".

UNEP's Country Programme in Haiti was launched in 2008 upon a direct request from the GoH to address the severe environmental degradation, extreme poverty and disaster vulnerability in the country. The devastating earthquake in January 2010 and the associated relief and recovery efforts caused a change in UNEP's priorities and as a result technical assistance was provided within areas such as energy, sanitation, resettlement planning and waste management. Since 2010, UNEP had been working in the energy sector in Haiti with the support of GoH.

The framework of the UNEP Haiti country programme was launched in 2011. The long-term vision of UNEP's work was to improve livelihoods of the more than 200,000 people who lived in the South Department spanning a 20-year period. This would be achieved through a diverse program that addressed the root causes of extreme poverty, including environmental degradation, vulnerability and limited access to energy and social services. Environmental restoration efforts focused on involving local communities in reforestation, erosion control, fisheries management and mangrove rehabilitation. Other activities targeted small business and tourism development, access to energy, access to water and sanitation, and improvements in health and education services.

It is in this context that UNEP initiated an investment in sustainable energy issues in the South Department of Haiti through the PIMS 01550 project "Haiti Sustainable Energy: South Department Norway Ministry of Foreign Affairs project (HSE I)" launched in October 2012 with a budget of USD 10,500,000 (to be confirmed) from the Government of Norway Ministry of Foreign Affairs, USAID, National Rural Electric Cooperative Association (NRECA) and the Inter-American Development Bank (IDB). This HSE I project was completed in December 2016 (to be confirmed).

The South Department on Haiti's Southern peninsula is the largest of Haiti's ten departments. The South Department was selected as UNEP's geographical Haiti focus area in 2010/2011. UNEP's country programme was headquartered in the Port Salut commune. The energy access status of the South Department was similar to most of rural Haiti. The level of access to electricity was much lower than in the capital and was estimated by UNEP to be approximately 20%. The subnational Les Cayes grid was also extremely unreliable and supplied low quality

power that damaged connected lighting and equipment. Blackouts and rolling load shedding were routine.

HSE I focused on the 6 following subjects:

- **Renewable energy education and governance:** Delivering energy policy support and building the capacity of the GoH and other key Haitian energy sector organizations in the field of renewable energy;
- **Household electricity for the South Department:** Developing retail energy products and rental sales of solar-powered lamps, lanterns and home systems;
- **Haiti mini-grids and rural electricity cooperative:** Supporting development of an NGO operated mini-grid and associated metering technology. Supporting installation of solar PV units in health clinics in the South Department. Developing a modern rural electrical cooperative to upgrade, sustainably operate and manage multiple, town-scale, conventional, high efficiency, renewable energy hybrid mini-grids;
- **Health facility electricity:** Facilitating installation of solar PV-diesel hybrid power supplies in health clinics and hospitals in the South Department;
- **Grid renewables:** Project development for renewable energy power generation for the national utility (EDH CSA)-managed Les Cayes regional grid in the South Department. An early focus on run-of river-hydropower but also evaluating the potential for wind, biomass and solar. Additional work on a proposed waste to energy project in the Port au Prince region;
- **Sustainable cooking and heating:** Investment in improved cookstoves and feasibility assessments for alternative fuels such as agricultural waste.

Hurricane Matthew, which hit the southwest coast of Haiti on October 4, 2016, was a major disaster for the South Department and caused important damages to several HSE I achievements. The PIMS 01968 project "Haiti Sustainable Energy South II (HSE II)" under evaluation was a continuation of the HSE I project, taking into account the damages that Hurricane Matthew caused.

UNEP decided to rationalize the subject areas of interest for the next phase. Thus, no continuation actions were undertaken by HSE II in Household electricity for the South Department, Grid renewables and Sustainable cooking and heating. The focus of HSE II was on the following 4 topics:

- **Health clinic electricity:** Post disaster reconstruction and recovery support;
- **Les Anglais mini-grid:** Post disaster reconstruction and recovery support;
- **Coopérative Electrique de l'Arrondissement des Coteaux (CEAC) mini-grid:** Post disaster reconstruction and recovery support. Follow on focused longer-term support to CEAC, including expansion of the mini-grid and integration of health clinics. Building the capacity of the cooperative members, board and management is a priority for the CEAC investment. A gender component is integrated into the scope;

- **Sustainable Energy Capacity Building and Governance (SE CBG):** Technical assistance and capacity building for the Haitian sustainable energy sector, focusing strongly on training and supporting Haitian nationals and national non-governmental, education and private sector organizations.

3. Project Results Framework

The purpose of all the UNEP investments in energy in the South Department was twofold:

- Generate practical and lasting benefits for the South Department;
- Demonstrate and seed fund solutions suitable for replication at a national scale.

The Project Document did not mention any specific project objective or goal. The single project outcome presented in the Project Document was: “PV hybrid units, mini-grids and energy cooperatives are proven self-sustaining solutions for Haiti and embedded in a national rural electrification policy framework.”

As mentioned in detail above, the project focused on 4 topics. Nevertheless, the project activities were structured in 3 components. Indeed, Health clinic electricity and Les Anglais mini-grids topics were gathered in the same Reconstruction component.

Table 2 below summarizes the project outcome, outputs and their respective indicators presented in the UNEP Logical Frameworks of the Project Document and its evolution in the 2 Project Revision Documents.

Table 2. Logical Framework

	Project Document (Dec 2016)	Project Revision 1 (Oct 2019)	Project Revision 2 (Dec 2020)
Project Outcome	PV hybrid units, mini-grids and energy cooperatives are proven self-sustaining solutions for Haiti and embedded in a national rural electrification policy framework.	Unchanged	Unchanged
Outcome Indicators	1. The CEAC cooperative passes a UNEP led management and technical capacity assessment review in June 2019 (baseline 0, target 1)	1. Unchanged	1. Unchanged

	2. PV hybrid systems continue to deliver energy to 12 Government of Haiti health clinics 24 months after reconstruction. (baseline 0, target 12)	2. Unchanged	2. Unchanged
	3. The Government of Haiti has developed a national rural electrification strategy by July 2019.(baseline 0 target 1)	3. Indicator deleted	3. Indicator deleted
	4. Gender issues are integrated into the mini-grid reconstruction activities, CEAC microcredit initiatives and SE platform publications and events and 5% of UNEP and co-finance investment is targeted at women headed households. (baseline 0% target 5%)	4. Unchanged	4. Unchanged
			5. CEAC cooperative independently operates the power plant and provides power to its members (baseline "No", Target "Yes")
Project Output 1	Reconstruction: Infrastructure reconstruction works delivered	Unchanged	Reconstruction: Infrastructure reconstruction works delivered to CEAC

			and other beneficiaries
Output 1 Indicators	# of health clinic PV systems reconstructed (Baseline 0 Target 12)	Unchanged	Unchanged
	# of minigrids repaired (Baseline 0, Target 2)	Unchanged	# of minigrids repaired (Baseline 0, Target 1)
			The full system of CEAC cooperative is installed including power plant, grid and metering (Baseline "No", Target "Yes")
Project Output 2	CEAC CB: Capacity building and technical assistance provided	Unchanged	CEAC CB: Capacity building and technical assistance provided- by the project for operation of CEAC
Output 2 Indicators	NRECA completes 3 more years of on-site technical assistance Q1 2019 (Baseline 3, Target 6)	# UN & partners complete 3 more years of on-site technical assistance Q1 2019 (Baseline 3, Target 6)	Unchanged
	# of CEAC assemblies held	# of CEAC assemblies held (Baseline 2, target 3)	Unchanged
			On the job capacity building programme provided (Baseline 0%, Target 100%)
			# of technicians receiving on the job training; (Baseline 0 - Target 12)

Project Output 3	SE CBG: National capacity development, communication and policy products delivered.	SE CBG: National technical assistance and capacity development products delivered	SE CBG: National technical assistance and capacity development products delivered to public authorities
Output 3 Indicators	# SE platform and course developed (baseline 0, target1)	# Rural electrification TA and capacity building events/activities delivered (Baseline 0. Target 3)	# of technical reports handed over to the government; (Baseline 0 – Target 2)
	# national rural electrification strategy launched (baseline 0, target 1)	Indicator deleted	# of technical assistance missions, seminars, training sessions; (Baseline 0. Target 3)
			# of participants including % of women; (Baseline: 0, Target: 60 including 20% women)

As explained in detail in sub-section 4. Executing Arrangements below, UNEP and UNOPS signed a UN Agency to UN Agency Contribution Agreement called UN Electric Haiti I in May 2018. Under this agreement, the project work plan was modified and divided into several Work Packages. Table 3 below presents the 13 Work Packages presented in the UN Electric Haiti I agreement. The expected outcome of this agreement was: “The project includes supporting reconstruction of 2 damaged mini-grid and 12 damaged health centre PV units, building the economic technical and managerial sustainability of the CEAC mini-grid and cooperative, and building national technical capacity in sustainable energy technology in Haiti.”

Table 3. UN Electric Haiti I Work Packages

No	UN Electric Haiti I Work Packages
1	Reconstruction support for les Anglais mini-grid
2	Reconstruction and expansion of the CEAC distribution grid
3	CEAC metering upgrade
4	CEAC power plant upgrade
5	CEAC PV ground mount prototype (cancelled)

6	Port Salut UNEP compound energy upgrade (cancelled)
7	CEAC operational loss coverage
8	CEAC capacity building
9	CEAC productive use and gender support
10	National vocational capacity building (cancelled)
11	South Department hydropower study
12	UN Electric REC design
13	UN Electric website development

Work Packages 5, 6 and 10 were cancelled during project implementation. The first amendment of the UN Electric agreement signed in September 2019 stipulated these cancelations. A 14th Work Package was added in this first amendment (Technical Assistance to the MTPTC/Cellule d'Énergie and lessons learned) but it was cancelled shortly after due to political instability.

Table 2 and 3 above show that HSE II project can be considered in two implementation periods. A pre-UN Electric agreement period and a post UN-Electric agreement period. The components or Work Packages of these two implementation phases are summarized and combined in the Table 4 below.

Table 4. Summary of project components

	Project Component
Component 1	Reconstruction: Health clinic reconstruction and Les Anglais mini-grid reconstruction Including Project Output 1 and Work Package 1
Component 2	CEAC: Reconstruction, Expansion, Upgrade and capacity building Including Project Output 2 and Work Packages 2, 3, 4, 5, 7, 8 and 9
Component 3	Sustainable Energy Capacity Building and Governance: Including Project Output 3 and Work Package 10
Component 4	Other accomplishments: Including work packages 6, 11, 12 and 13

Two Theories of Change (TOC) were presented in Annexes in the Project Document. They independently concern project activities related to CEAC and project activities related to wider capacity building. These TOC are not mentioned in the project revisions or in the UN Electric project documents.

Table 5 below presents the TOC for the project activities related to CEAC.

Table 5. CEAC related project activities TOC

Activities	Outputs	Outcomes	Goal
Provide operating reserves	Cash in bank	CEAC remains solvent until 2020 break-even	CEAC is fully self-sustained and has 2500 metered connections and 500 battery rentals by 2020
Extend the MV and LV distribution network	15km of new MV and LV distribution	1000 projected extra connections & more revenue	
Seed fund 4 Sirona on-grid systems	4 operating Sirona franchises	8kW of daytime load, 2000 off grid beneficiaries & more revenue for CEAC	
Upgrade & support 12 health clinic PV systems	12 functional HC power supplies	Local health benefits extended for 3 years	
Integrate 5 clinics into CEAC	5 clinics connected to CEAC with bespoke agreements	5 clinics have a sustainable power solution. CEAC has another 20kW of PV capacity	
CEAC board capacity building	Training sessions	A capable and stable CEAC board	
GoH technical assistance	Policy support papers	Appropriate national rural electrification policies	
CEAC team capacity building	Team training	A capable CEAC staff team	

The following assumptions are listed:

- Political and legislative stability;
- CEAC board uptake of advice and capacity building;
- GoH active engagement in CEAC oversight;

- EDH continued non-interference.

Table 6 below presents the TOC for the project activities related wider capacity building.

Table 6. Wider capacity building related project activities TOC

Activities	Outputs	Outcomes	Intermediate States	Goal
Website development, bulletins, platform membership drive	A national SE knowledge platform	Improved SE knowledge sharing and retention	More experienced and empowered national SE workforce	National SE market growth supported by a capable national Se workforce
Field research, analysis and reporting on 4 SE themes	Thematic reports & workshops on mini-grids, PV, wind, SSH,	300+ trained and informed national SE practitioners	Better informed policies and projects on reported themes	
Grad level course development	Curriculum and trained lecturers	A new Haitian post graduate certificate course in SE	Better qualified national SE workforce	

The following assumptions were listed:

- Political and legislative stability;
- Haitian participation in the developed platform;
- Haitian uptake of offered courses.

4. Executing Arrangements

Initially, the project implementation strategy was based on national implementation and international support⁶⁰. Intense international support was to be provided in 2016 in order to fully mobilize the project and was to be reduced but not removed thereafter. Project authority was to stay in Haiti, with a project steering committee and locally based project management. Four project implementation partners were to be contracted directly to UNEP. The project was to be managed in Haiti by UNEP from the UNEP office in Port Salut, with backup support provided by the UNEP Port au Prince office and with international support.

⁶⁰ Little information was found on the concretization of this initial project implementation strategy during the preparation of the TORs, this will need to be clarified during the Inception Phase.

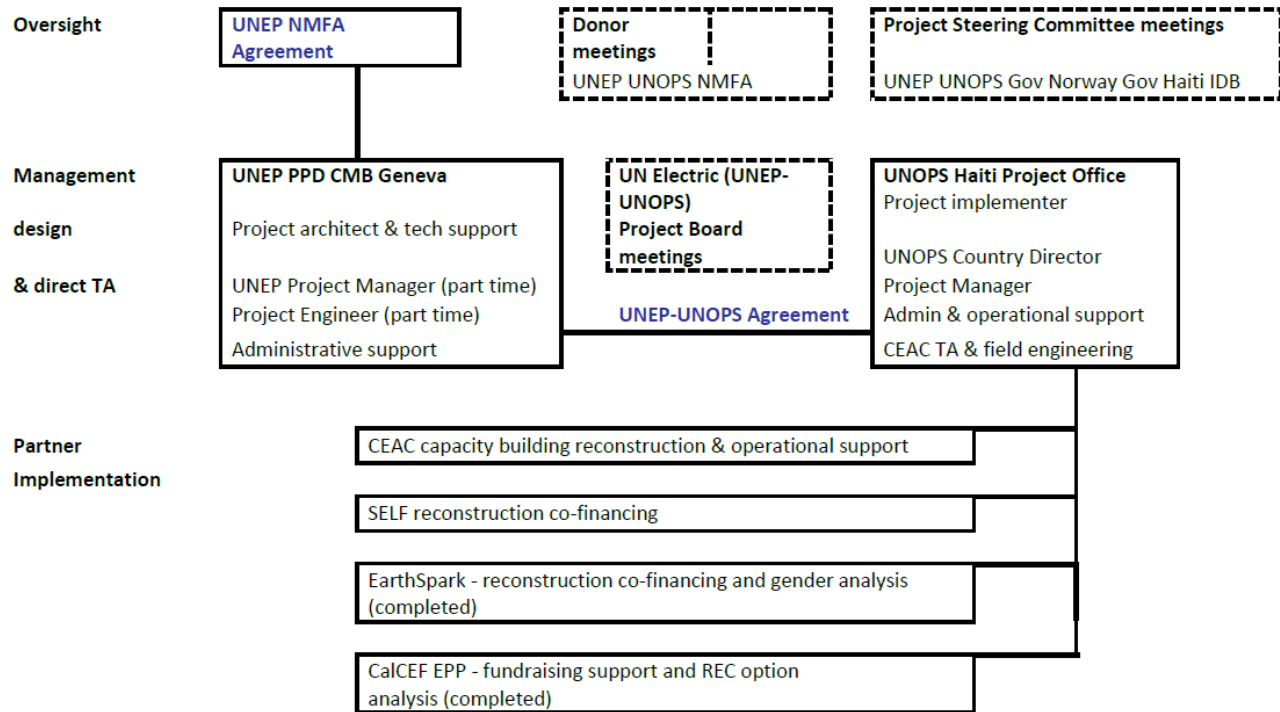
Nevertheless, from the beginning, the original implementation model based on UNEP/local NGO partnerships suffered from several challenges. Shortly after the beginning of the project implementation, discussions were being engaged with the new UN led (by UNEP and UNOPS) long term initiative - UN Electric. UN Electric focuses on electrification projects for foreign aid organizations and fragile and small island states. Haiti and HSE II project were selected as one of the first countries for rollout of the UN Electric model. In May 2018, UNEP and UNOPS signed a UN Agency to UN Agency Contribution Agreement called UN Electric Haiti I. This agreement was originally supposed to end on December 31, 2019.

The revised project implementation strategy was based on the UN Electric model. This model entails a significant transfer of responsibility to UNOPS, so that UNOPS hold responsibility for specific activities and outputs rather than just the provision of project support services (the standard UNEP-UNOPS global MOU model). Hence in this model, UNEP Policy and Programme Division and Crisis Management Branch played the role of project architect and developer and UNOPS managed implementation at the national level. A central expert team in Geneva provided ongoing technical support to the national UNOPS team and partners. The key roles of the project team members are listed below:

- UNEP Project Manager (Haiti);
- UNEP Project Engineer (Geneva);
- UNEP Senior Advisory (Geneva);
- UNOPS Country Director (Port au Prince);
- UNOPS UN Electric Haiti I Project Manager (Port au Prince);
- UNOPS CEAC Technical assistance and field team (2 staff).

Figure 1 below presents the project management structure:

Figure 1. Project Management Structure (under the UN Electric agreement)



Since October 2019 and until the end of the project, implementation of HSE II was managed in Haiti by UNOPS with UNEP Haiti Head of Programme oversight and project management. UNEP Geneva team members provided ongoing technical support. UNEP Policy and Programme Division and Crisis Management Branch remained overall project manager and accountable to its donor, the Government of Norway.

Project oversight by the donor NMFA occurred via UNEP supplied updates and an annual formal meeting in Haiti or online. The project was overseen at the top level by the donors and a multi-stakeholder steering committee which was to be held annually. This was a decision-making forum, co-chaired by the Government of Haiti and NMFA.

Each of the key technical partners (EarthSpark, Solar Electric Lighting Fund (SELF), CEAC, California Clean Energy Fund-Energy Peace Partners (CalCEF-EPP)) had a clear and separate role and budget, with only limited and non-contractual interconnection. SELF, CEAC and EarthSpark were already involved in the implementation of HSE I project.

5. Project Cost and Financing

The Government of Norway Ministry of Foreign Affairs was the donor of the HSE II project. The initial contribution of the Government of Norway as planned in the Project Document was NOK 38,000,000. An addendum to the original agreement between UNEP and the Norwegian Ministry of Foreign Affairs was signed in October 2017 for an additional NOK 2,500,000. The second amendment to the original agreement was signed in November 2020 to increase the Norwegian contribution of NOK 3,800,000. In total, the contribution of the Government of Norway was NOK 44,300,000.

The total budget of the project as presented in the second project revision of December 2020 was USD 5,264,484.79⁶¹. Table 5 below presents the project budget at design and its evolution during the 2 project revisions.

Table 5. Project budget (USD)

			Project Document (Dec 2016)	Project Revision 1 (Oct 2019)	Project Revision 2 (Dec 2020)	
TYPE OF FUNDING	SOURCE OF FUNDING	Details				
CASH	Environment Fund activity budget		0	0	0	
	Regular Budget activity budget		0	0	0	
	Extrabudgetary Funding (posts + non-post+PMC)	Secured (NMFA)		4,618,938	4,513,718 ⁶²	4,870,614
		Unsecured XB funding		0	0	0
		UNEP PSC_on Secured funds 8%		0	150,193	180,294
		UNOPS IDC		0	209,688	209,688
		Coordination Levy 1%		0	0	3,909
	XB Sub-total		0	359,861	393,871	
SUB- TOTAL			4,618,938	4,873,578	5,264,484.79	
IN-KIND & CO-FINANCE ⁶³	Environment Fund post costs		0	0	0	
	Regular Budget post costs		0	0	0	
	Other (include name of donor)	NRECA managed USAID co-financing		1,000,000	0	0
		NRECA International		500,000	0	0
	SUB- TOTAL			1,500,000	0	0
TOTAL			6,118,938	4,873,578	5,264,484.79	

The budget associated with the UN Agency to UN Agency Contribution Agreement was originally USD 3,429,335 USD. It was increased by USD 350,030 in December 2020 with the third amendment of the UN Electric agreement to reach USD 3,779,365.

⁶¹ Final amount was slightly adjusted after the actual installment and at actual exchange rate (USD 5,303,535)

⁶² Due to exchange rate fluctuations

⁶³ The Progress Report II of September 2018 mentioned the following:

- "USAID financed the USA NGO NRECA International for capacity building the electricity cooperative CEAC. This support was particularly critical in maintaining CEAC operational continuity in 2016 and 2017 and is valued in kind at approximately USD 600K"
- "The Inter-American Development Bank has co-financed post-hurricane reconstruction activities, via a pre-selected NGO, the Solar Electric Light Fund. The funding is two phased, USD 200K of funding has been disbursed and USD 1,000K is still pending disbursement due to contracting and government issues"

The co-financing should be investigated further during the Inception Phase.

Table 6 below presents the project expenditures associated with the UN Electric budget as of March 31, 2021.

Table 6. UN Electric budget expenditures as of March 31, 2021

	2018	2019	2020	2021	Total
Contribution (A)	1,900,000	1,000,000	529,335	350,030	3,779,365
Expenditures (B)					
Project Expense	602,413	1,056,374	624,322	84,378	
Management Fees	39,097	68,559	40,519	5,476	
Net Exchange Gain/Loss	705	(289)	(2,363)	42	
Total Expenditures	642,215	1,124,644	662,478	89,896	2,519,233
Project Advances (C)					
Project Capitalised Assets (D)					
Project Cash Balance	A-B-C-D				1,241,784
Actual Commitments (E)					
Project Fund Balance	A-B-C-D-E				287,253

6. Implementation Issues

As previously explained, the project experienced several changes during its implementation.

The Project Document had 2 revisions which were accompanied by 2 amendments of the Agreement between UNEP and the Government of Norway. The first revision of October 2019 was passed between UNEP (Geneva) and the Government of Norway without going through the Project Review Committee.

The first revision was signed in October 2019 for the following reasons:

- Additional funding from the donor (NOK 2,500,000);
- Delays in milestones and targets due the following causes:
 - o Continued instability and insecurity at the national level;
 - o A 24 month delay in securing the forecast USD 1M in co-financing from the Inter-American Development bank, which delayed mobilization of the last stage of min-grid reconstruction, upgrade and expansion;
 - o Three changes in the UNEP project manager;
 - o A post project mobilization change in the UNEP and procurement policy, which deterred the originally planned main implementation partner (NRECA) from

- participation. This precipitated a range of issues, which were addressed with the changes to the implementation and project management model;
- Difficulties in attracting specialist private sector energy equipment providers to work in Haiti.
- Revising and reducing outputs in the third project component: Sustainable Energy Capacity Building and Governance due to the following cause:
- Implementation of this project component was originally planned for the Haitian NGO, the Haitian Energy Institute, which is legally hosted by the University of Quisqueya, an existing UN Environment partner. However, HEI proved unable to develop a proposal and team of sufficient quality and relevance to form a partnership. A subsequent search for a substitute partner was unsuccessful.
 - The national political background also degraded substantially from 2017 – 2019, with a change in government and significant violence and instability effectively paralysing most governmental processes.
- A change to the project management and implementation model (from country team based to the UN Electric model). UNEP implementation of country level projects in fragile states always faces challenges. The intensity of the problems for this project was increased by several factors:
- The post project approval withdrawal of the planned primary implementation partner NRECA, who held much of the expertise required to implement the project;
 - The technical complexity of the topic, which demanded a highly technical team;
 - The need for large scale engineering equipment procurement and installation;
 - The core project design for the CEAC component, which included development of an energy cooperative from first principles in 2014;
 - Significant co-financing dependencies;
 - Some generic UN Environment Haiti level team and project manager recruitment and performance issues.

The second revision was signed in December 2020 to mitigate the impact of COVID-19 pandemic and secure the delivery of core components to reach a satisfactory level of impact and sustainability. To this end, the project was extended until June 30, 2021 and the donor gave its agreement for an additional financial contribution of NOK 3,800,000. COVID-19 has had significant impact on the project by halting the chain of supply for international material from China and technical assistance.

The UN Electric agreement had 3 amendments. The amendments signed in September 2019, January 2020 and December 2020 respectively were aligned with the project revisions mentioned above.

Add a paragraph about the fact even if the technical completion date was June 2021, the project team made some arrangements to finish some activities after that date.

Despite the project revision and extension until June 2021, due to external exceptional challenges during first half of 2021 (flooding in Europe/France that delayed shipment of final materials, assassination of the Haitian President, gangs blocking roads to the project sites) everything could not be completed by June 2021 and another extension was not an option. Even though the project is officially completed, the project team is still working to complete the last deliverables (one final piece of material to be installed (batteries) is critical to the full function of the system and powerplant, operating and business model, and peaceful cooperative governance).

HSE II project had no Mid-term evaluation or review⁶⁴.

Section 2. OBJECTIVE AND SCOPE OF THE EVALUATION

7. Objective of the Evaluation

In line with the UNEP Evaluation Policy⁶⁵ and the UNEP Programme Manual⁶⁶, the Terminal Evaluation is undertaken at operational completion of the project to assess project performance (in terms of relevance, effectiveness and efficiency), and determine outcomes and impacts (actual and potential) stemming from the project, including their sustainability. The Evaluation has two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote operational improvement, learning and knowledge sharing through results and lessons learned among UNEP, its implementing partners (UNOPS, CEAC, EarthSpark, SELF) and other stakeholders involved in Renewable Energy projects in Haiti. Therefore, the Evaluation will identify lessons of operational relevance for future project formulation and implementation. Recommendations relevant to the whole house may also be identified during the evaluation process.

8. Key Evaluation Principles

Evaluation findings and judgements will be based on **sound evidence and analysis**, clearly documented in the Evaluation Report. Information will be triangulated (i.e. verified from different sources) as far as possible, and when verification is not possible, the single source will be mentioned (whilst anonymity is still protected). Analysis leading to evaluative judgements should always be clearly spelled out.

The “Why?” Question. As this is a Terminal Evaluation, particular attention will be given to learning from the experience. Therefore, the “why?” question should be at the front of the consultants’ minds all through the evaluation exercise and is supported by the use of a theory of change approach. This means that the consultant(s) needs to go beyond the assessment of “what” the project performance was and make a serious effort to provide a deeper

⁶⁴ HSE I had a Midpoint progress report in June 2014 but had no Terminal Evaluation or review.

⁶⁵ <https://www.unenvironment.org/about-un-environment/evaluation-office/policies-and-strategies>

⁶⁶ <https://wecollaborate.unep.org>

understanding of “why” the performance was as it was (i.e. what contributed to the achievement of the project’s results). This should provide the basis for the lessons that can be drawn from the project.

Attribution, Contribution and Credible Association: In order to attribute any outcomes and impacts to a project intervention, one needs to consider the difference between what has happened with, and what would have happened without, the project (i.e. take account of changes over time and between contexts in order to isolate the effects of an intervention). This requires appropriate baseline data and the identification of a relevant counterfactual, both of which are frequently not available for evaluations. Establishing the contribution made by a project in a complex change process relies heavily on prior intentionality (e.g. approved project design documentation, logical framework) and the articulation of causality (e.g. narrative and/or illustration of the Theory of Change). Robust evidence that a project was delivered as designed and that the expected causal pathways developed supports claims of contribution and this is strengthened where an alternative theory of change can be excluded. A credible association between the implementation of a project and observed positive effects can be made where a strong causal narrative, although not explicitly articulated, can be inferred by the chronological sequence of events, active involvement of key actors and engagement in critical processes.

Communicating evaluation results. A key aim of the Evaluation is to encourage reflection and learning by UNEP staff and key project stakeholders. The consultant(s) should consider how reflection and learning can be promoted, both through the evaluation process and in the communication of evaluation findings and key lessons. Clear and concise writing is required on all evaluation deliverables. Draft and final versions of the Main Evaluation Report will be shared with key stakeholders by the Evaluation Manager. There may, however, be several intended audiences, each with different interests and needs regarding the report. The consultant(s) will plan with the Evaluation Manager which audiences to target and the easiest and clearest way to communicate the key evaluation findings and lessons to them. This may include some, or all, of the following; a webinar, conference calls with relevant stakeholders, the preparation of an Evaluation Brief or interactive presentation.

9. Key Strategic Questions

In addition to the evaluation criteria outlined in Section 10 below, the Evaluation will address the strategic questions listed below. These are questions of interest to UNEP and to which the project is believed to be able to make a substantive contribution:

- (a) What were the achievements of HSE I and how did HSE II learned from HSE I, especially in terms of hurricane risks for the technical equipment?
- (b) How beneficial the UN Electric agreement was for the project implementation? What were the challenges inherent to the shift to the UN Electric agreement?
- (c) Did the changes that UNEP and the donor undergone over the project duration impact the project implementation? And How?
- (d) What changes were made to adapt to the effects of COVID-19 and how might any changes affect the project’s performance?

10. Evaluation Criteria

All evaluation criteria will be rated on a six-point scale. Sections A-I below, outline the scope of the criteria. A weightings table in excel format will be provided by the Evaluation Manager to support the determination of an overall project rating. The set of evaluation criteria are grouped in nine categories: (A) Strategic Relevance; (B) Quality of Project Design; (C) Nature of External Context; (D) Effectiveness, which comprises assessments of the availability of outputs, achievement of outcomes and likelihood of impact; (E) Financial Management; (F) Efficiency; (G) Monitoring and Reporting; (H) Sustainability; and (I) Factors Affecting Project Performance. The Evaluation Consultant(s) can propose other evaluation criteria as deemed appropriate.

A. Strategic Relevance

The Evaluation will assess the extent to which the activity is suited to the priorities and policies of the donors, implementing regions/countries and the target beneficiaries. The Evaluation will include an assessment of the project's relevance in relation to UNEP's mandate and its alignment with UNEP's policies and strategies at the time of project approval. Under strategic relevance an assessment of the complementarity of the project with other interventions addressing the needs of the same target groups will be made. This criterion comprises four elements:

i. Alignment to the UNEP Medium Term Strategy⁶⁷ (MTS), Programme of Work (POW) and Strategic Priorities

The Evaluation should assess the project's alignment with the MTS and POW under which the project was approved and include, in its narrative, reflections on the scale and scope of any contributions made to the planned results reflected in the relevant MTS and POW. UNEP strategic priorities include the Bali Strategic Plan (BSP) for Technology Support and Capacity Building and South-South Cooperation (S-SC). The BSP relates to the capacity of governments to: comply with international agreements and obligations at the national level; promote, facilitate and finance environmentally sound technologies and to strengthen frameworks for developing coherent international environmental policies. S-SC is regarded as the exchange of resources, technology and knowledge between developing countries.

ii. Alignment to Donor/Partner Strategic Priorities

Donor strategic priorities will vary across interventions. The Evaluation will assess the extent to which the project is suited to, or responding to, donor priorities. In some cases, alignment with donor priorities may be a fundamental part of project design and grant approval processes while in others, for example, instances of 'softly-earmarked' funding, such alignment may be more of an assumption that should be assessed.

⁶⁷ UNEP's Medium Term Strategy (MTS) is a document that guides UNEP's programme planning over a four-year period. It identifies UNEP's thematic priorities, known as Sub-programmes (SP), and sets out the desired outcomes, known as Expected Accomplishments (EAs), of the Sub-programmes. <https://www.unenvironment.org/about-un-environment/evaluation-office/our-evaluation-approach/un-environment-documents>

iii. Relevance to Global, Regional, Sub-regional and National Environmental Priorities

The Evaluation will assess the alignment of the project with global priorities such as the SDGs and Agenda 2030. The extent to which the intervention is suited, or responding to, the stated environmental concerns and needs of the countries, sub-regions or regions where it is being implemented will be considered. Examples may include: UN Development Assistance Frameworks (UNDAF) or national or sub-national development plans, poverty reduction strategies or Nationally Appropriate Mitigation Action (NAMA) plans or regional agreements etc. Within this section consideration will be given to whether the needs of all beneficiary groups are being met and reflects the current policy priority to leave no one behind.

iv. Complementarity with Relevant Existing Interventions/Coherence⁶⁸

An assessment will be made of how well the project, either at design stage or during the project inception or mobilization⁶⁹, took account of ongoing and planned initiatives (under the same sub-programme, other UNEP sub-programmes, or being implemented by other agencies within the same country, sector or institution) that address similar needs of the same target groups. The Evaluation will consider if the project team, in collaboration with Regional Offices and Sub-Programme Coordinators, made efforts to ensure their own intervention was complementary to other interventions, optimized any synergies and avoided duplication of effort. Examples may include UNDAFs or One UN programming. Linkages with other interventions should be described and instances where UNEP's comparative advantage has been particularly well applied should be highlighted.

Factors affecting this criterion may include:

- Stakeholders' participation and cooperation
- Responsiveness to human rights and gender equality
- Country ownership and driven-ness

B. Quality of Project Design

The quality of project design is assessed using an agreed template during the evaluation inception phase, ratings are attributed to identified criteria and an overall Project Design Quality rating is established. The complete Project Design Quality template should be annexed in the Evaluation Inception Report. Later, the overall Project Design Quality rating⁷⁰ should be entered in the final evaluation ratings table (as item B) in the Main Evaluation Report and a summary of the project's strengths and weaknesses at design stage should be included within the body of the report.

Factors affecting this criterion may include (at the design stage):

- Stakeholders participation and cooperation
- Responsiveness to human rights and gender equality

⁶⁸ This sub-category is consistent with the new criterion of 'Coherence' introduced by the OECD-DAC in 2019.

⁶⁹ A project's inception or mobilization period is understood as the time between project approval and first disbursement. Complementarity during project implementation is considered under Efficiency, see below.

⁷⁰ In some instances, based on data collected during the evaluation process, the assessment of the project's design quality may change from Inception Report to Main Evaluation Report.

C. Nature of External Context

At evaluation inception stage a rating is established for the project's external operating context (considering the prevalence of conflict, natural disasters and political upheaval⁷¹). This rating is entered in the final evaluation ratings table as item C. Where a project has been rated as facing either an Unfavourable or Highly Unfavourable external operating context, and/or a negative external event has occurred during project implementation, the ratings for Effectiveness, Efficiency and/or Sustainability may be increased at the discretion of the Evaluation Consultant and Evaluation Manager together. A justification for such an increase must be given.

D. Effectiveness

i. Availability of Outputs⁷²

The Evaluation will assess the project's success in producing the programmed outputs and making them available to the intended beneficiaries as well as its success in achieving milestones as per the project design document (ProDoc). Any formal modifications/revisions made during project implementation will be considered part of the project design. Where the project outputs are inappropriately or inaccurately stated in the ProDoc, reformulations may be necessary in the reconstruction of the Theory of Change (TOC). In such cases a table should be provided showing the original and the reformulation of the outputs for transparency. The availability of outputs will be assessed in terms of both quantity and quality, and the assessment will consider their ownership by, and usefulness to, intended beneficiaries and the timeliness of their provision. It is noted that emphasis is placed on the performance of those outputs that are most important to achieve outcomes. The Evaluation will briefly explain the reasons behind the success or shortcomings of the project in delivering its programmed outputs and meeting expected quality standards.

Factors affecting this criterion may include:

- Preparation and readiness
- Quality of project management and supervision⁷³

ii. Achievement of Project Outcomes⁷⁴

The achievement of project outcomes is assessed as performance against the project outcomes as defined in the reconstructed⁷⁵ Theory of Change. These are outcomes that are intended to be achieved by the end of the project timeframe and within the project's resource

⁷¹ Note that 'political upheaval' does not include regular national election cycles, but unanticipated unrest or prolonged disruption. The potential delays or changes in political support that are often associated with the regular national election cycle should be part of the project's design and addressed through adaptive management by the project team. From March 2020 this should include the effects of COVID-19.

⁷² Outputs are the availability (for intended beneficiaries/users) of new products and services and/or gains in knowledge, abilities and awareness of individuals or within institutions (UNEP, 2019)

⁷³ 'Project management and supervision' refers to the supervision and guidance provided by UNEP to implementing partners and national governments.

⁷⁴ Outcomes are the use (i.e. uptake, adoption, application) of an output by intended beneficiaries, observed as changes in institutions or behavior, attitude or condition (UNEP, 2019)

⁷⁵ All submitted UNEP project documents are required to present a Theory of Change. The level of 'reconstruction' needed during an evaluation will depend on the quality of this initial TOC, the time that has lapsed between project design and implementation (which may be related to securing and disbursing funds) and the level of any formal changes made to the project design.

envelope. Emphasis is placed on the achievement of project outcomes that are most important for attaining intermediate states. As with outputs, a table can be used where substantive amendments to the formulation of project outcomes is necessary to allow for an assessment of performance. The Evaluation should report evidence of attribution between UNEP's intervention and the project outcomes. In cases of normative work or where several actors are collaborating to achieve common outcomes, evidence of the nature and magnitude of UNEP's 'substantive contribution' should be included and/or 'credible association' established between project efforts and the project outcomes realised.

Factors affecting this criterion may include:

- Quality of project management and supervision
- Stakeholders' participation and cooperation
- Responsiveness to human rights and gender equality
- Communication and public awareness

iii. Likelihood of Impact

Based on the articulation of long-lasting effects in the reconstructed TOC (*i.e. from project outcomes, via intermediate states, to impact*), the Evaluation will assess the likelihood of the intended, positive impacts becoming a reality. Project objectives or goals should be incorporated in the TOC, possibly as intermediate states or long-lasting impacts. The Evaluation Office's approach to the use of TOC in project evaluations is outlined in a guidance note available and is supported by an excel-based flow chart, 'Likelihood of Impact Assessment Decision Tree'. Essentially the approach follows a 'likelihood tree' from project outcomes to impacts, taking account of whether the assumptions and drivers identified in the reconstructed TOC held. Any unintended positive effects should also be identified and their causal linkages to the intended impact described.

The Evaluation will also consider the likelihood that the intervention may lead, or contribute to, unintended negative effects (e.g. will vulnerable groups such as those living with disabilities and/or women and children, be disproportionately affected by the project?). Some of these potential negative effects may have been identified in the project design as risks or as part of the analysis of Environmental and Social Safeguards.

1. The Evaluation will consider the extent to which the project has played a catalytic role⁷⁶ or has promoted scaling up and/or replication as part of its Theory of Change (either explicitly as in a project with a demonstration component or implicitly as expressed in the drivers required

⁷⁶ The terms *catalytic effect*, *scaling up* and *replication* are inter-related and generally refer to extending the coverage or magnitude of the effects of a project. *Catalytic effect* is associated with triggering additional actions that are not directly funded by the project – these effects can be both concrete or less tangible, can be intentionally caused by the project or implied in the design and reflected in the TOC drivers, or can be unintentional and can rely on funding from another source or have no financial requirements. *Scaling up* and *Replication* require more intentionality for projects, or individual components and approaches, to be reproduced in other similar contexts. *Scaling up* suggests a substantive increase in the number of new beneficiaries reached/involved and may require adapted delivery mechanisms while *Replication* suggests the repetition of an approach or component at a similar scale but among different beneficiaries. Even with highly technical work, where scaling up or replication involves working with a new community, some consideration of the new context should take place and adjustments made as necessary.

to move to outcome levels) and as factors that are likely to contribute to greater or long-lasting impact.

Ultimately UNEP and all its partners aim to bring about benefits to the environment and human well-being. Few projects are likely to have impact statements that reflect such long-lasting or broad-based changes. However, the Evaluation will assess the likelihood of the project to make a substantive contribution to the long-lasting changes represented by the Sustainable Development Goals, and/or the intermediate-level results reflected in UNEP's Expected Accomplishments and the strategic priorities of funding partner(s).

Factors affecting this criterion may include:

- Quality of Project Management and Supervision (including adaptive management)
- Stakeholders participation and cooperation
- Responsiveness to human rights and gender equality
- Country ownership and driven-ness
- Communication and public awareness

E. Financial Management

Financial management will be assessed under three themes: *adherence* to UNEP's financial policies and procedures, *completeness* of financial information and *communication* between financial and project management staff. The Evaluation will establish the actual spend across the life of the project of funds secured from all donors. This expenditure will be reported, where possible, at output/component level and will be compared with the approved budget. The Evaluation will verify the application of proper financial management standards and adherence to UNEP's financial management policies. Any financial management issues that have affected the timely delivery of the project or the quality of its performance will be highlighted. The Evaluation will record where standard financial documentation is missing, inaccurate, incomplete or unavailable in a timely manner. The Evaluation will assess the level of communication between the Project Manager and the Fund Management Officer as it relates to the effective delivery of the planned project and the needs of a responsive, adaptive management approach.

Factors affecting this criterion may include:

- Preparation and readiness
- Quality of project management and supervision

F. Efficiency

Under the efficiency criterion, the Evaluation will assess the extent to which the project delivered maximum results from the given resources. This will include an assessment of the cost-effectiveness and timeliness of project execution.

Focussing on the translation of inputs into outputs, *cost-effectiveness* is the extent to which an intervention has achieved, or is expected to achieve, its results at the lowest possible cost. *Timeliness* refers to whether planned activities were delivered according to expected timeframes as well as whether events were sequenced efficiently. The Evaluation will also assess to what extent any project extension could have been avoided through stronger project management

and identify any negative impacts caused by project delays or extensions. The Evaluation will describe any cost or time-saving measures put in place to maximise results within the secured budget and agreed project timeframe and consider whether the project was implemented in the most efficient way compared to alternative interventions or approaches.

The Evaluation will give special attention to efforts made by the project teams during project implementation to make use of/build upon pre-existing institutions, agreements and partnerships, data sources, synergies and complementarities⁷⁷ with other initiatives, programmes and projects etc. to increase project efficiency.

The factors underpinning the need for any project extensions will also be explored and discussed. As management or project support costs cannot be increased in cases of 'no cost extensions', such extensions represent an increase in unstated costs to implementing parties.

Factors affecting this criterion may include:

- Preparation and readiness (e.g. timeliness)
- Quality of project management and supervision
- Stakeholders participation and cooperation

G. Monitoring and Reporting

The Evaluation will assess monitoring and reporting across three sub-categories: monitoring design and budgeting, monitoring implementation and project reporting.

i. Monitoring Design and Budgeting

Each project should be supported by a sound monitoring plan that is designed to track progress against SMART⁷⁸ results towards the provision of the project's outputs and achievement of project outcomes, including at a level disaggregated by gender, marginalisation or vulnerability, including those living with disabilities. In particular, the Evaluation will assess the relevance and appropriateness of the project indicators as well as the methods used for tracking progress against them as part of conscious results-based management. The Evaluation will assess the quality of the design of the monitoring plan as well as the funds allocated for its implementation. The adequacy of resources for Mid-Term and Terminal Evaluation/Review should be discussed if applicable.

ii. Monitoring of Project Implementation

The Evaluation will assess whether the monitoring system was operational and facilitated the timely tracking of results and progress towards projects objectives throughout the project implementation period. This assessment will include consideration of whether the project gathered relevant and good quality baseline data that is accurately and appropriately documented. This should include monitoring the representation and participation of disaggregated groups, including gendered, marginalised or vulnerable groups, such as those living with disabilities, in project activities. It will also consider the quality of the information

⁷⁷ Complementarity with other interventions during project design, inception or mobilization is considered under Strategic Relevance above.

⁷⁸ SMART refers to results that are specific, measurable, achievable, relevant and time-oriented. Indicators help to make results measurable.

generated by the monitoring system during project implementation and how it was used to adapt and improve project execution, achievement of outcomes and ensure sustainability. The Evaluation should confirm that funds allocated for monitoring were used to support this activity.

iii. Project Reporting

UNEP has a centralised Project Information Management System (PIMS) in which project managers upload six-monthly progress reports against agreed project milestones. This information will be provided to the Evaluation Consultant(s) by the Evaluation Manager. Some projects have additional requirements to report regularly to funding partners, which will be supplied by the project team. The Evaluation will assess the extent to which both UNEP and donor reporting commitments have been fulfilled. Consideration will be given as to whether reporting has been carried out with respect to the effects of the initiative on disaggregated groups.

Factors affecting this criterion may include:

- Quality of project management and supervision
- Responsiveness to human rights and gender equality (e.g. disaggregated indicators and data)

H. Sustainability

Sustainability⁷⁹ is understood as the probability of the benefits derived from the achievement of project outcomes being maintained and developed after the close of the intervention. The Evaluation will identify and assess the key conditions or factors that are likely to undermine or contribute to the endurance of achieved project outcomes (i.e. 'assumptions' and 'drivers'). Some factors of sustainability may be embedded in the project design and implementation approaches while others may be contextual circumstances or conditions that evolve over the life of the intervention. Where applicable an assessment of bio-physical factors that may affect the sustainability of project outcomes may also be included.

i. Socio-political Sustainability

The Evaluation will assess the extent to which social or political factors support the continuation and further development of the benefits derived from project outcomes. It will consider the level of ownership, interest and commitment among government and other stakeholders to take the project achievements forwards. In particular the Evaluation will consider whether individual capacity development efforts are likely to be sustained.

ii. Financial Sustainability

Some project outcomes, once achieved, do not require further financial inputs, e.g. the adoption of a revised policy. However, in order to derive a benefit from this outcome further management action may still be needed e.g. to undertake actions to enforce the policy. Other project outcomes may be dependent on a continuous flow of action that needs to be resourced for them

⁷⁹ As used here, 'sustainability' means the long-lasting maintenance of outcomes and consequent impacts, whether environmental or not. This is distinct from the concept of sustainability in the terms 'environmental sustainability' or 'sustainable development', which imply 'not living beyond our means' or 'not diminishing global environmental benefits' (GEF STAP Paper, 2019, *Achieving More Enduring Outcomes from GEF Investment*)

to be maintained, e.g. continuation of a new natural resource management approach. The Evaluation will assess the extent to which project outcomes are dependent on future funding for the benefits they bring to be sustained. Secured future funding is only relevant to financial sustainability where a project's outcomes have been extended into a future project phase. Even where future funding has been secured, the question still remains as to whether the project outcomes are financially sustainable.

iii. Institutional Sustainability

The Evaluation will assess the extent to which the sustainability of project outcomes (especially those relating to policies and laws) is dependent on issues relating to institutional frameworks and governance. It will consider whether institutional achievements such as governance structures and processes, policies, sub-regional agreements, legal and accountability frameworks etc. are robust enough to continue delivering the benefits associated with the project outcomes after project closure. In particular, the Evaluation will consider whether institutional capacity development efforts are likely to be sustained.

Factors affecting this criterion may include:

- Stakeholders participation and cooperation
- Responsiveness to human rights and gender equality (e.g. where interventions are not inclusive, their sustainability may be undermined)
- Communication and public awareness
- Country ownership and driven-ness

I. Factors Affecting Project Performance and Cross-Cutting Issues

(These factors are rated in the ratings table but are discussed within the Main Evaluation Report as cross-cutting themes as appropriate under the other evaluation criteria, above. If these issues have not been addressed under the evaluation criteria above, then independent summaries of their status within the evaluated project should be given.)

i. Preparation and Readiness

This criterion focuses on the inception or mobilisation stage of the project (i.e. the time between project approval and first disbursement). The Evaluation will assess whether appropriate measures were taken to either address weaknesses in the project design or respond to changes that took place between project approval, the securing of funds and project mobilisation. In particular the Evaluation will consider the nature and quality of engagement with stakeholder groups by the project team, the confirmation of partner capacity and development of partnership agreements as well as initial staffing and financing arrangements. *(Project preparation is included in the template for the assessment of Project Design Quality).*

ii. Quality of Project Management and Supervision

In some cases 'project management and supervision' may refer to the supervision and guidance provided by UNEP to implementing partners and national governments while in others, it may refer to the project management performance of an implementing partner and the technical backstopping and supervision provided by UNEP. The performance of parties playing different roles should be discussed and a rating provided for both types of supervision

(UNEP/Implementing Agency; Partner/Executing Agency) and the overall rating for this sub-category established as a simple average of the two.

The Evaluation will assess the effectiveness of project management with regard to: providing leadership towards achieving the planned outcomes; managing team structures; maintaining productive partner relationships (including Steering Groups etc.); maintaining project relevance within changing external and strategic contexts; communication and collaboration with UNEP colleagues; risk management; use of problem-solving; project adaptation and overall project execution. Evidence of adaptive management should be highlighted.

iii. Stakeholder Participation and Cooperation

Here the term 'stakeholder' should be considered in a broad sense, encompassing all project partners, duty bearers with a role in delivering project outputs and target users of project outputs and any other collaborating agents external to UNEP and the implementing partner(s). The assessment will consider the quality and effectiveness of all forms of communication and consultation with stakeholders throughout the project life and the support given to maximise collaboration and coherence between various stakeholders, including sharing plans, pooling resources and exchanging learning and expertise. The inclusion and participation of all differentiated groups, including gender groups should be considered.

iv. Responsiveness to Human Rights and Gender Equality

The Evaluation will ascertain to what extent the project has applied the UN Common Understanding on the human rights-based approach (HRBA) and the UN Declaration on the Rights of Indigenous People. Within this human rights context the Evaluation will assess to what extent the intervention adheres to UNEP's Policy and Strategy for Gender Equality and the Environment⁸⁰.

In particular the Evaluation will consider to what extent project implementation and monitoring have taken into consideration: (i) possible inequalities (especially those related to gender) in access to, and the control over, natural resources; (ii) specific vulnerabilities of disadvantaged groups (especially women, youth and children and those living with disabilities) to environmental degradation or disasters; and (iii) the role of disadvantaged groups (especially those related to gender) in mitigating or adapting to environmental changes and engaging in environmental protection and rehabilitation.

v. Environmental and Social Safeguards

UNEP projects address environmental and social safeguards primarily through the process of environmental and social screening at the project approval stage, risk assessment and management (avoidance, minimization, mitigation or, in exceptional cases, offsetting) of potential environmental and social risks and impacts associated with project and programme

⁸⁰ The Evaluation Office notes that Gender Equality was first introduced in the Project Review Committee Checklist in 2010 and, therefore, provides a criterion rating on gender for projects approved from 2010 onwards. Equally, it is noted that policy documents, operational guidelines and other capacity building efforts have only been developed since then and have evolved over time.
https://wedocs.unep.org/bitstream/handle/20.500.11822/7655/-Gender_equality_and_the_environment_Policy_and_strategy-2015Gender_equality_and_the_environment_policy_and_strategy.pdf.pdf?sequence=3&isAllowed=y

activities. The Evaluation will confirm whether UNEP requirements⁸¹ were met to: *review* risk ratings on a regular basis; *monitor* project implementation for possible safeguard issues; *respond* (where relevant) to safeguard issues through risk avoidance, minimization, mitigation or offsetting and *report* on the implementation of safeguard management measures taken. UNEP requirements for proposed projects to be screened for any safeguarding issues; for sound environmental and social risk assessments to be conducted and initial risk ratings to be assigned, are evaluated above under Quality of Project Design).

The Evaluation will also consider the extent to which the management of the project minimised UNEP's environmental footprint.

vi. Country Ownership and Driven-ness

The Evaluation will assess the quality and degree of engagement of government / public sector agencies in the project. While there is some overlap between Country Ownership and Institutional Sustainability, this criterion focuses primarily on the forward momentum of the intended projects results, i.e. either a) moving forwards from outputs to project outcomes or b) moving forward from project outcomes towards intermediate states. The Evaluation will consider the engagement not only of those directly involved in project execution and those participating in technical or leadership groups, but also those official representatives whose cooperation is needed for change to be embedded in their respective institutions and offices (e.g. representatives from multiple sectors or relevant ministries beyond Ministry of Environment). This factor is concerned with the level of ownership generated by the project over outputs and outcomes and that is necessary for long-lasting impact to be realised. Ownership should extend to all gender and marginalised groups.

vii. Communication and Public Awareness

The Evaluation will assess the effectiveness of: a) communication of learning and experience sharing between project partners and interested groups arising from the project during its life and b) public awareness activities that were undertaken during the implementation of the project to influence attitudes or shape behaviour among wider communities and civil society at large. The Evaluation should consider whether existing communication channels and networks were used effectively, including meeting the differentiated needs of gendered or marginalised groups, and whether any feedback channels were established. Where knowledge sharing platforms have been established under a project the Evaluation will comment on the sustainability of the communication channel under either socio-political, institutional or financial sustainability, as appropriate.

Section 3. EVALUATION APPROACH, METHODS AND DELIVERABLES

The Terminal Evaluation will be an in-depth evaluation using a participatory approach whereby key stakeholders are kept informed and consulted throughout the evaluation process. Both quantitative and qualitative evaluation methods will be used as appropriate to determine project

⁸¹ For the review of project concepts and proposals, the Safeguard Risk Identification Form (SRIF) was introduced in 2019 and replaced the Environmental, Social and Economic Review note (ESERN), which had been in place since 2016. In GEF projects safeguards have been considered in project design since 2011.

achievements against the expected outputs, outcomes and impacts. It is highly recommended that the consultant(s) maintains close communication with the project team and promotes information exchange throughout the Evaluation implementation phase in order to increase their (and other stakeholder) ownership of the evaluation findings. Where applicable, the consultant(s) will provide a geo-referenced map that demarcates the area covered by the project and, where possible, provide geo-reference photographs of key intervention sites (e.g. sites of habitat rehabilitation and protection, pollution treatment infrastructure, etc.)

The findings of the Evaluation will be based on the following:

(a) A desk review of:

- Relevant background documentation, inter alia [HSE I Project Documentation, HSE I Midpoint Progress Report];
- Project design documents (including minutes of the project design review meeting at approval); Annual Work Plans and Budgets or equivalent, revisions to the project (Project Document Supplement), the logical framework and its budget;
- Project reports such as six-monthly progress and financial reports, progress reports from collaborating partners, meeting minutes, relevant correspondence etc.;
- Project deliverables;
- Evaluations/reviews of similar projects.

(b) **Interviews** (individual or in group) with:

- UNEP Project Manager (PM) and his team;
- UNOPS Project Team management team;
- UNEP Fund Management Officer (FMO);
- Project partners, including [UNOPS, CEAC, EarthSpark, SELF, CalCEF-EPP, Norway Ministry of Foreign Affairs, Government of Haiti, Autorité Nationale de Régulation du Secteur de l'Energie (ANARSE) / Cellule de l'Energie];
- Sub-Programme Coordinator;
- Relevant resource persons;
- Representatives from civil society and specialist groups

(c) **Surveys** [among the health clinics and the mini-grid users]

(d) **Field visits** [the Health Clinics, Les Anglais mini-grid and the Coopérative Electrique de l'Arrondissement des Coteaux (CEAC) mini-grid should be visited]

(e) Other data collection tools

11. Evaluation Deliverables and Review Procedures

The Evaluation Consultant will prepare:

Inception Report: (see Annex 1 for a list of all templates, tables and guidance notes) containing an assessment of project design quality, a draft reconstructed Theory of Change of the project, project stakeholder analysis, evaluation framework and a tentative evaluation schedule.

Preliminary Findings: typically in the form of a PowerPoint presentation, the sharing of preliminary findings is intended to support the participation of the project team, act as a means to ensure all information sources have been accessed and provide an opportunity to verify emerging findings. In the case of highly strategic project/portfolio evaluations or evaluations with an Evaluation Reference Group, the preliminary findings may be presented as a word document for review and comment.

Draft and Final Evaluation Report: containing an executive summary that can act as a stand-alone document; detailed analysis of the evaluation findings organised by evaluation criteria and supported with evidence; lessons learned and recommendations and an annotated ratings table.

An **Evaluation Brief** (a 2-page overview of the evaluand and evaluation findings) for wider dissemination through the UNEP website may be required. This will be discussed with the Evaluation Manager no later than during the finalization of the Inception Report.

Review of the Draft Evaluation Report. The Evaluation Consultant(s) will submit a draft report to the Evaluation Manager and revise the draft in response to their comments and suggestions. Once a draft of adequate quality has been peer-reviewed and accepted, the Evaluation Manager will share the cleared draft report with the Project Manager/Implementing Partner, who will alert the Evaluation Manager in case the report contains any blatant factual errors. The Evaluation Manager will then forward the revised draft report (corrected by the Evaluation Consultant(s) where necessary) to other project stakeholders, for their review and comments. Stakeholders may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions as well as providing feedback on the proposed recommendations and lessons. Any comments or responses to draft reports will be sent to the Evaluation Manager for consolidation. The Evaluation Manager will provide all comments to the Evaluation Consultant(s) for consideration in preparing the final report, along with guidance on areas of contradiction or issues requiring an institutional response.

Based on a careful review of the evidence collated by the Evaluation Consultant(s) and the internal consistency of the report, the Evaluation Manager will provide an assessment of the ratings in the final Main Evaluation Report. Where there are differences of opinion between the evaluator and the Evaluation Manager on project ratings, both viewpoints will be clearly presented in the final report. The Evaluation Office ratings will be considered the final ratings for the project.

The Evaluation Manager will prepare a **quality assessment** of the first draft of the Main Evaluation Report, which acts as a tool for providing structured feedback to the Evaluation Consultant(s). The quality of the final report will be assessed and rated against the criteria specified in template listed in Annex 1 and this assessment will be appended to the Final Evaluation Report.

At the end of the evaluation process, the Evaluation Office will prepare a **Recommendations Implementation Plan** in the format of a table, to be completed and updated at regular intervals by the Project Manager. The Evaluation Office will track compliance against this plan on a six-monthly basis for a maximum of 12 months.

12. The Evaluation Consultant

For this Evaluation, the Evaluation Consultant will work under the overall responsibility of the Evaluation Office represented by an Evaluation Manager [Victor Beguerie], in consultation with the UNEP Project Manager [Fabien Monteils], Fund Management Officer [Paul Obonya] and the UNEP Disasters and Conflicts Sub-programme Coordinator [Stefan Smith]. The Evaluation Consultant will liaise with the Evaluation Manager on any procedural and methodological matters related to the Evaluation, including travel. It is, however, each consultants' individual responsibility (where applicable) to arrange for their visas and immunizations as well as to plan meetings with stakeholders, organize online surveys, obtain documentary evidence and any other logistical matters related to the assignment. The UNEP Project Manager and project team will, where possible, provide logistical support (introductions, meetings etc.) allowing the consultants to conduct the Evaluation as efficiently and independently as possible.

The Evaluation Consultant will be hired over a period of 6 months [from January 15, 2022 to July, 15 2022] and should have the following: a university degree in environmental sciences, international development or other relevant political or social sciences area is required and an advanced degree in the same areas is desirable; a minimum of 5 years of technical / evaluation experience is required, preferably including evaluating large, regional or global programmes and using a Theory of Change approach; and a good/broad understanding of renewable energy is desired. English and French are the working languages of the United Nations Secretariat. For this consultancy, fluency in oral and written English is a requirement and proficiency in Haitian Creole is desirable. Working knowledge of the UN system and specifically the work of UNEP is an added advantage. The work will be home-based with possible field visits.

The Evaluation Consultant will be responsible, in close consultation with the Evaluation Office of UNEP for overall management of the Evaluation and timely provision of its outputs, described above in Section 11 Evaluation Deliverables, above. The Evaluation Consultant will ensure that all evaluation criteria and questions are adequately covered.

In close consultation with the Evaluation Manager, the Evaluation Consultant will be responsible for the overall management of the Evaluation and timely provision of its outputs, data collection and analysis and report-writing. More specifically:

Inception phase of the Evaluation, including:

- preliminary desk review and introductory interviews with project staff;
- draft the reconstructed Theory of Change of the project;
- prepare the evaluation framework;
- develop the desk review and interview protocols;
- draft the survey protocols (if relevant);
- develop and present criteria for country and/or site selection for the evaluation mission;
- plan the evaluation schedule;
- prepare the Inception Report, incorporating comments until approved by the Evaluation Manager

Data collection and analysis phase of the Evaluation, including:

- conduct further desk review and in-depth interviews with project implementing and executing agencies, project partners and project stakeholders;
- (where appropriate and agreed) conduct an evaluation mission(s) to selected countries, visit the project locations, interview project partners and stakeholders, including a good representation of local communities. Ensure independence of the Evaluation and confidentiality of evaluation interviews.
- regularly report back to the Evaluation Manager on progress and inform of any possible problems or issues encountered and;
- keep the Project Manager informed of the evaluation progress.

Reporting phase, including:

- draft the Main Evaluation Report, ensuring that the evaluation report is complete, coherent and consistent with the Evaluation Manager guidelines both in substance and style;
- liaise with the Evaluation Manager on comments received and finalize the Main Evaluation Report, ensuring that comments are taken into account until approved by the Evaluation Manager
- prepare a Response to Comments annex for the main report, listing those comments not accepted by the Evaluation Consultant and indicating the reason for the rejection; and
- (where agreed with the Evaluation Manager) prepare an Evaluation Brief (2-page summary of the evaluand and the key evaluation findings and lessons)

Managing relations, including:

- maintain a positive relationship with evaluation stakeholders, ensuring that the evaluation process is as participatory as possible but at the same time maintains its independence;
- communicate in a timely manner with the Evaluation Manager on any issues requiring its attention and intervention.

13. Schedule of the Evaluation

The table below presents the tentative schedule for the Evaluation.

Table 3. Tentative schedule for the Evaluation

Milestone	Tentative Dates
Evaluation Initiation Meeting	Mid-January 2022
Final Inception Report	Mid- March 2022
Evaluation Mission	Mid-March to End-April 2022
E-based interviews, surveys etc.	Mid-March to End-April 2022
Powerpoint/presentation on preliminary findings and recommendations	Mid-May 2022
Draft report to Evaluation Manager (and Peer Reviewer)	Early-June 2022
Draft Report shared with UNEP Project Manager and team	Mid-June 2022

Draft Report shared with wider group of stakeholders	End-June 2022
Final Report	Mid-July 2022
Final Report shared with all respondents	Mid-July 2022

14. Contractual Arrangements

Evaluation Consultants will be selected and recruited by the Evaluation Office of UNEP under an individual Special Service Agreement (SSA) on a “fees only” basis (see below). By signing the service contract with UNEP/UNON, the consultant(s) certify that they have not been associated with the design and implementation of the project in any way which may jeopardize their independence and impartiality towards project achievements and project partner performance. In addition, they will not have any future interests (within six months after completion of the contract) with the project’s executing or implementing units. All consultants are required to sign the Code of Conduct Agreement Form.

Fees will be paid on an instalment basis, paid on acceptance by the Evaluation Manager of expected key deliverables. The schedule of payment is as follows:

Schedule of Payment for the [Evaluation Consultant/Principal Evaluator]:

Deliverable	Percentage Payment
Approved Inception Report (as per annex document #9)	30%
Approved Draft Main Evaluation Report (as per annex document #10)	30%
Approved Final Main Evaluation Report	40%

Fees only contracts: Where applicable, air tickets will be purchased by UNEP and 75% of the Daily Subsistence Allowance for each authorised travel mission will be paid up front. Local in-country travel will only be reimbursed where agreed in advance with the Evaluation Manager and on the production of acceptable receipts. Terminal expenses and residual DSA entitlements (25%) will be paid after mission completion.

The consultants may be provided with access to UNEP’s information management systems (e.g PIMS, Anubis, Sharepoint etc) and if such access is granted, the consultants agree not to disclose information from that system to third parties beyond information required for, and included in, the evaluation report.

In case the consultants are not able to provide the deliverables in accordance with these guidelines, and in line with the expected quality standards by the UNEP Evaluation Office, payment may be withheld at the discretion of the Director of the Evaluation Office until the consultants have improved the deliverables to meet UNEP’s quality standards.

If the consultant(s) fail to submit a satisfactory final product to UNEP in a timely manner, i.e. before the end date of their contract, the Evaluation Office reserves the right to employ additional human resources to finalize the report, and to reduce the consultants’ fees by an amount equal to the additional costs borne by the Evaluation Office to bring the report up to standard.

ANNEX 6: EVALUATION FRAMEWORK/ MATRIX
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STRATEGIC RELEVANCE			
No.	Evaluation questions	Indicators/criteria	Data sources
1.	Did the project goals and design align with to UNEP, UNDP and GEF strategies and priorities?	<ul style="list-style-type: none"> • Alignment with UNEP MTS and PoW, Bali Strategic Plan for Technology Support and Capacity Building (BSP) and South-South Cooperation (S-SC) • Alignment with UNDP Strategic plan • Alignment with GEF Climate Change Programme 	<ul style="list-style-type: none"> • Project Design docs • Background on CSI • UNEP MTS, PoW, BSP, S-SC • UNDP Strategic Plan • GEF Climate Change Programme
2.	Was the project responding to needs of Haiti government and Department South?	<ul style="list-style-type: none"> • Strategic Energy Policy papers • Stats on energy availability • GoH requests 	<ul style="list-style-type: none"> • GoH policy docs, • GoH officials • Reports and news articles about Haiti context • Interviews with local politicians and stakeholders and CEAC members/beneficiaries
3.	Was the project complementary with other SE interventions?	<ul style="list-style-type: none"> • Existence of other grids, CB programs 	<ul style="list-style-type: none"> • Consultation with EarthSpark, SELF and EDH officials • Other project docs...
QUALITY OF PROJECT DESIGN			
No.	Evaluation questions	Indicators/criteria	Data sources
4.	Was the project design appropriate, realistic and coherent?	<ul style="list-style-type: none"> • Heavily dependent on Haiti context • Consistency of results framework, logic and risk matrix • Comprehensiveness of outputs and outcomes vis-à-vis achieving objective • Modifications justified by HSE I experience and documented revisions 	<ul style="list-style-type: none"> • Assessment of design quality (Annex B) • Project Design docs and revisions • Outputs, outcomes, development of ToC and results framework • News and past reports and research on Haiti context. • Interviews with UNEP & UNOPS engineers as well as EarthSpark and SELF engineers, local political and business leaders, CEAC staff and members, HEI and EDH personal

NATURE OF EXTERNAL CONTEXT			
No.	Evaluation questions	Indicators/criteria	Data sources
5.	Was the context conducive for pursuing and achieving the project objective and outcomes?	<ul style="list-style-type: none"> • Influence of conflict, natural disasters and political upheaval on project implementation • Local ownership and support of project • Legislation, New policies, policy papers, press releases government committees... 	<ul style="list-style-type: none"> • Assessment of design quality • News and past reports and research on Haiti context. • Interviews with implementing partners and stakeholders • Policy paper, GoH websites, press releases...
EFFECTIVENESS			
No.	Evaluation questions	Indicators/criteria	Data sources
6.	Is the project on track in its output delivery?	<ul style="list-style-type: none"> • Comparison of design document with outputs and outcomes, • The intended outputs work plans have been delivered • Work accomplished, i.e. PV units in hospitals, grid work. power plant, PV units, length of grid, and number of household and clinic connections receiving electric... • CEAC meetings and membership, training activities • Website, content and traffic • Grad courses, graduates, employment rates • Government activities and policies, meetings on topic • Visits from respective government 	<ul style="list-style-type: none"> • Design document, quarterly reports, work plans and packages • Amendments and revisions • CEAC member household survey data • Written products produced (e.g. publications, knowledge products, workshop and training reports) • Web platform • Interviews with implementing partners and stakeholders, particularly households connected to grid and CEAC staff
7.	Are the outputs completed useful and of good quality?	<p>Same as above plus the following</p> <ul style="list-style-type: none"> • Number of household connections receiving electric, hours of service, change in living standards and school study habits of beneficiaries, change in clinic activities and performance, purchase of electric appliance by CEAC members, entrepreneurial activities... • Number of online visits and downloads • Number of events and number of participants 	<ul style="list-style-type: none"> • Quarterly reports, work plans and packages • Other accounting reports, purchases orders... • Household survey data • Workshop participation data • Interviews with implementing partners and stakeholders,

NATURE OF EXTERNAL CONTEXT			
No.	Evaluation questions	Indicators/criteria	Data sources
		<ul style="list-style-type: none"> • Users and participants express appreciation of the outputs and activities and their usefulness 	particularly households connected to grid and CEAC staff <ul style="list-style-type: none"> • CEAC meeting reports and elections • Web traffic data

<i>Achievement of outcomes</i>			
No.	Evaluation questions	Indicators/criteria	Data sources
8.	Outcome 1: Has the grid been repaired and expanded?	<ul style="list-style-type: none"> • Existence of grid that is delivery electricity to x households • Existence of new clinic PV systems • 5 clinics connected to grid 	<ul style="list-style-type: none"> • Site visits and interviews with staff on ground • Quarterly reports, work plans and packages • CEAC books • Household survey data • Interviews with implementing partners and stakeholders, particularly households connected to grid and CEAC staff
9.	Outcome 2: How functional and sustainable is CEAC	<ul style="list-style-type: none"> • CEAC work orders and repairs to grid and equipment • Financial books • Meetings and elections • Hours of available electric service • Opinions/ratings of members 	<ul style="list-style-type: none"> • Quarterly reports, work plans and packages • CEAC books • Household survey data • Interviews with members and staff
10.	Outcome 3: Have clinic PV systems been installed & have 5 of 12 clinics been grid connected	<ul style="list-style-type: none"> • Existence of systems • Functional connections and dependable service (amount of kW delivered, stability and quality of service) 	<ul style="list-style-type: none"> • Project documents • Visual inspection • Interviews with SELF engineers and hospital staff
11.	Outcome 4: Clarify failure of national SE CB activities	<ul style="list-style-type: none"> • These were cancelled/ partners failed to deliver 	<ul style="list-style-type: none"> • Interviews with UNIQ and HEI staff/consultants
<i>Likelihood of impact</i>			
No.	Evaluation questions	Indicators/criteria	Data sources
12.	Has the grid electric/Clinic PV systems changed behavior and time allotted activities.	<ul style="list-style-type: none"> • Number and use of new labor-saving electric household appliances, plus cooling and lighting products and uses of these, such as pumping water and reasons... bathing laundry... • Number of entrepreneur activities, including household production/processing and resale • Study habits. 	<ul style="list-style-type: none"> • Household survey data • Interviews with implementing partners and stakeholders, particularly households connected to grid and CEAC staff

<i>Achievement of outcomes</i>			
No.	Evaluation questions	Indicators/criteria	Data sources
13.	Negative effects: Is there a risk that the project will lead to significant negative effects?	<ul style="list-style-type: none"> • Risks for negative outcomes/impacts • Electrocution 	<ul style="list-style-type: none"> • Project reports • Risk matrix • Interviews with implementing partners and stakeholders, particularly households connected to grid and CEAC staff • Reports and news articles about Haiti context
FINANCIAL MANAGEMENT			
No.	Evaluation questions	Indicators/criteria	Data sources
14.	Were financial management and decisions appropriate and conducive for project delivery?	<ul style="list-style-type: none"> • Fund allocations, reallocations, agreements, amendments and revisions were clearly justified/explained • Financial reports were made available in a timely manner that did not cause implementation delays or implementation gaps • UNEP and UNOP financial staff responsiveness to addressing and resolving financial issues • Ease of communication between UNEP, UNOPS and other partners financial staff 	<ul style="list-style-type: none"> • Quarterly reports, amendments, budgets • Other accounting reports, purchases orders... • Interviews with implementing accounting staff and stakeholders, particularly households connected to grid and CEAC staff
15.	Has co-financing materialised as expected at project approval?	<ul style="list-style-type: none"> • Amount of cofunding expected and sought • Amount of co-funding mobilised and respective work • Amount of co-funding leverage from other sources (in-cash and in-kind) 	<ul style="list-style-type: none"> • Project reports • Interviews with implementing accounting staff and stakeholders, particularly households connected to grid and CEAC staff
EFFICIENCY			
No.	Evaluation questions	Indicators/criteria	Data sources
16.	Was the project implemented in a timely manner?	<ul style="list-style-type: none"> • Timeliness of activities, outputs and milestones vis-à-vis work plans • Corrective measures taken to mitigate delays 	<ul style="list-style-type: none"> • Quarterly reports, work plans Work packages • Revisions and amendments

<i>Achievement of outcomes</i>			
No.	Evaluation questions	Indicators/criteria	Data sources
		<ul style="list-style-type: none"> • Justification and appropriateness of project extension • Annual spending compared to budgeted/planned spending per component and output 	<ul style="list-style-type: none"> • Interviews with implementing partners and stakeholders, particularly households connected to grid and CEAC staff • Reports and news articles about Haiti context
17.	Was the project implemented in a cost-effective manner?	<ul style="list-style-type: none"> • Actual vs. planned costs of components and outcomes • Number of outputs per component and related activities delivered compared to original design • Justification of project extensions and cancellations • Measures to adjust and adapt budget and activities to actual costs • Extent to which co-financing was leveraged • Extent to which the project achieved economy of scale, costs-savings and/or was able to increase the level of activity and output through partnerships (e.g. joint activities and division of labour) and use of existing data and processes 	<ul style="list-style-type: none"> • Quarterly reports, work plans • Financial reports • Budgets • Work packages • Revisions and amendments • Interviews with implementing partners and stakeholders, particularly households connected to grid and CEAC staff • Reports and news articles about Haiti context
MONITORING AND REPORTING			
<i>Monitoring design and budgeting</i>			
No.	Evaluation questions	Indicators/criteria	Data sources
18.	Were the indicators appropriate for results-oriented monitoring?	<ul style="list-style-type: none"> • Indicators • Availability of clear indicator targets and milestones • Female employees • Female-owned businesses as implementing partners 	<ul style="list-style-type: none"> • 2017 Project Design doc. • 2017 UN Electric agreement • 2018 Project narrative • Logical framework • Risk Matrix
19.	Were adequate provisions put in place for monitoring and evaluation?	<ul style="list-style-type: none"> • Quarterly, annual and periodic reports produced • Quality of reports and data • Surveys and research 	<ul style="list-style-type: none"> • Projects reports and documents • Implementing partner report requirements • Interview implementers M&E staff, consultants • CEAC staff and reports, tracking

<i>Achievement of outcomes</i>			
No.	Evaluation questions	Indicators/criteria	Data sources
			docs
MONITORING OF PROJECT IMPLEMENTATION			
No.	Evaluation questions	Indicators/criteria	Data sources
20.	Was monitoring system sufficient and timely deployed for ongoing feedback?	<ul style="list-style-type: none"> • Timeliness of reports • Frequency and comprehensiveness of data gathering and analysis • Gender-disaggregation of data, when appropriate 	<ul style="list-style-type: none"> • Projects reports
21.	Were risks monitored and reported on?	<ul style="list-style-type: none"> • Risks identified in risk framework • Relevance, importance and comprehensiveness of the risks identified and accuracy of risk rating • Amendments, revisions and cancellations 	<ul style="list-style-type: none"> • Projects reports • Interviews with staff of all implementing partners
22.	Was project monitoring used as a management tool?	<ul style="list-style-type: none"> • Tangible examples of monitoring data leading to changes/adjustments in project approach and implementation 	<ul style="list-style-type: none"> • Projects reports • Interviews with staff of all implementing partners
<i>Project reporting</i>			
No.	Evaluation questions	Indicators/criteria	Data sources
23.	Was project reporting timely and of adequate quality?	<ul style="list-style-type: none"> • Timeliness of report submission • 	<ul style="list-style-type: none"> • Project reports • Interviews with staff
SUSTAINABILITY			
No.	Evaluation questions	Indicators/criteria	Data sources
24.	Did the project implement a clear sustainability strategy?	<ul style="list-style-type: none"> • Strategy outlined • Budget and source of income defined and practical 	<ul style="list-style-type: none"> • Project docs
<i>Socio-political sustainability</i>			
No.	Evaluation questions	Indicators/criteria	Data sources
25.	Is the GoH committed to SE?	<ul style="list-style-type: none"> • Publications, press releases • Policy papers issued, campaign promises • Mentions on GOH website • Other SE projects realized • Support in terms of proposals, site visits and existence of other project 	<ul style="list-style-type: none"> • Newspapers • Websites • Policy docs. • Interviews with GoH officials

<i>Achievement of outcomes</i>			
No.	Evaluation questions	Indicators/criteria	Data sources
		<ul style="list-style-type: none"> • RFPs for SE activities 	
<i>Financial sustainability</i>			
No.	Evaluation questions	Indicators/criteria	Data sources
26.	Did the project implement a clear post-project continuation strategy?	<ul style="list-style-type: none"> • Project docs and plans 	<ul style="list-style-type: none"> • Project docs • Interviews with members UNEP and UNOPS
<i>Institutional sustainability</i>			
27.	Have UNEP and UNOPS internalised the project in their work?	<ul style="list-style-type: none"> • UNEP and UNOPS Policy changes • UNEP and UNOPS online mentions of projects • Availability of project documents on UNEP and UNOPS sites 	<ul style="list-style-type: none"> • Project docs • Website contents, downloadable reports and publications • Interviews with UNEP and UNOPS staff

FACTORS AND PROCESSES AFFECTING PROJECT PERFORMANCE (cross-cutting issues)			
<i>Preparation and readiness</i>			
No.	Evaluation questions	Indicators/criteria	Data sources
28.	Was the project responsive and adaptive?	<ul style="list-style-type: none"> • Agreements, revisions and amendments • Cancellations and other changes • Accomplishments 	<ul style="list-style-type: none"> • Projects docs: Agreements, revisions and amendments • Interviews with staff of all implementing partners • Interviews with employees on the ground
<i>Quality of project management and supervision</i>			
No.	Evaluation questions	Indicators/criteria	Data sources
29.	Was the project implementation and management setup conducive for implementation?	<ul style="list-style-type: none"> • Complications in implementation • Cancellations • Delays • Turnover in employment and sub-contractors 	<ul style="list-style-type: none"> • Project reports, amendments, revisions • Interviews with UNEP and UNOP staff • Interviews with implementing partner staff
30.	Were UNEP's and UNOP's dual roles of supervision and providing execution support conducive for project delivery?	<ul style="list-style-type: none"> • Clarity of separation of implementing and executing agency roles, in project documents • Problems with communication • Problems with procurement 	<ul style="list-style-type: none"> • Project documents • Interviews with UNEP and UNOP staff • Interviews with implementing partner staff
<i>Stakeholder participation and cooperation</i>			
No.	Evaluation questions	Indicators/criteria	Data sources
31.	Did the project engage stakeholders beyond their participation in events and as users of the web platform?	<ul style="list-style-type: none"> • Level of consultation/involvement of key stakeholders in the project design process • Community meetings • CEAC attendance and activities • Publications and mentions online • Radio and Newspaper announcements 	<ul style="list-style-type: none"> • Reports • Onsite verification • Mentions in Newspapers and radio • Interviews, survey data
<i>Responsiveness to human rights and gender equity</i>			
No.	Evaluation questions	Indicators/criteria	Data sources

FACTORS AND PROCESSES AFFECTING PROJECT PERFORMANCE (cross-cutting issues)			
<i>Preparation and readiness</i>			
32.	Did the project consider the inclusion of human rights and gender in transparency systems?	<ul style="list-style-type: none"> • Report content, mentions, coverage • Quality of consideration for HR and gender 	<ul style="list-style-type: none"> • Assessment of design quality (Annex B) • Project reports • Interviews with implementing partners and stakeholders

<i>Environmental and social safeguards</i>			
No.	Evaluation questions	Indicators/criteria	Data sources
33.	Were environmental risks mitigated?	<ul style="list-style-type: none"> • Safeguard measures such as fuel containment basins • Waste disposal area, particular batteries • Use of green materials, low impact batteries. • Other steps taken to minimise or offset the project's environmental footprint (e.g. vis-à-vis air travel) 	<ul style="list-style-type: none"> • Reports • Onsite verification
<i>Country ownership and driven-ness</i>			
No.	Evaluation questions	Indicators/criteria	Data sources
34.	Did Haitian national Gov, the Department level, and/or local communities have a degree of ownership in the project?	<ul style="list-style-type: none"> • Level of high-level involvement in project (visits, mentions in publications) • Departmental level involvement, visits, support.... • Local mayor, ASEC and CASEC involvement. Visits and participation • Community involvement: CEAC participation 	<ul style="list-style-type: none"> • Projects reports, political press releases, mentions on GoH websites. • CEAC records • Interviews with politicians, CEAC and other implementing partners, beneficiaries
<i>Communication and public awareness</i>			
No.	Evaluation questions	Indicators/criteria	Data sources
35.	Did the activities and outputs ensure that the project and its services were visible and reached the intended audience?	<ul style="list-style-type: none"> • Household connections and inclusiveness of beneficiaries • Reliability of electric • Clinic PV systems installed and exists 	<ul style="list-style-type: none"> • Site inspections • Survey data • Interviews with beneficiaries and implementing partners

			<ul style="list-style-type: none"> Review of CEAC membership records
OTHER STRATEGIC QUESTIONS FROM THE TOR			
No.	Evaluation questions	Indicators/criteria	Data sources
36.	What were the achievements of HSE I and how did HSE II learned from HSE I, especially in terms of hurricane risks for the technical equipment?	<ul style="list-style-type: none"> Modifications to HSE II based on HSE I experiences Successes that followed from modifications 	<ul style="list-style-type: none"> Projects documents Interviews with implementing partners Verification on the ground
37.	How beneficial the UN Electric agreement was for the project implementation? What were the challenges inherent to the shift to the UN Electric agreement?	<ul style="list-style-type: none"> Modifications made for UN Electric, including change in organizations structure and roles Successes that followed from modifications 	<ul style="list-style-type: none"> Projects documents Interviews with implementing partners Verification on the ground
38.	Did the changes that UNEP and the donor undergo over the project duration impact the project implementation? And How?	<ul style="list-style-type: none"> Revisions, amendments, cancellations Modifications made for UN Electric, including change in organizations structure and roles Successes that followed from modifications 	<ul style="list-style-type: none"> Projects documents Interviews with implementing partners Verification on the ground
39.	What changes were made to adapt to the effects of COVID-19 and how might any changes affect the project's performance?	<ul style="list-style-type: none"> Revisions, amendments, cancellations that were a direct consequence of COVID-19 impacts 	<ul style="list-style-type: none"> Projects documents Interviews with implementing partners Verification on the ground

ANNEX 7: SURVEY REPORT

**Draft
Survey Summary**

CEAC Household Beneficiary Survey
for
Terminal Evaluation of the UNEP
Haiti Sustainable Energy Project II (HSE II)
(UN Electric Haiti Project)
PROJECT ID: UNEP PIMS ID 01968
(2016-2021)

4 July 2022

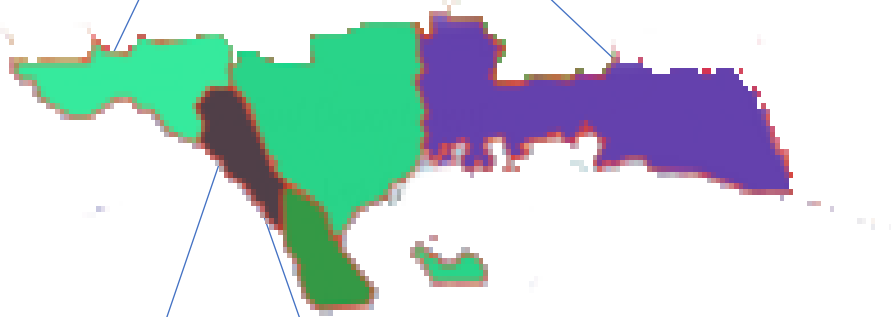
HAITI

Land 27,750 km²
Pop 11,637,099
Urb. 56%
Median Age: 24 yrs
Life Exp: 65 yrs
Infant Mort: 48
Per Capita inc.: USD 2.962



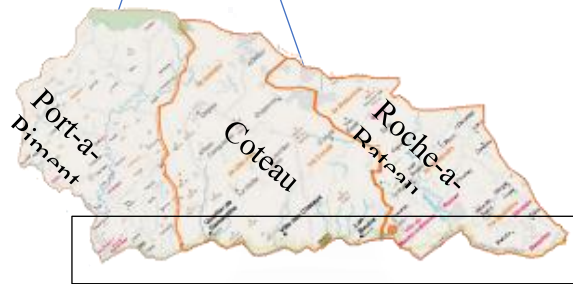
DEPARTMENT OF SOUTH

Land 2,654 km²
Pop ~800,000
Urb. 22%



ARRONDISSEMENT COTEAU

Land 181 km²
Pop 60.000

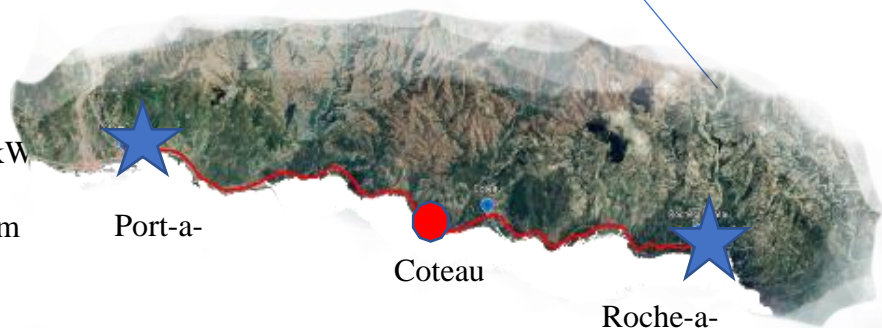


COMMUNES

Roche-à-Bateaux (pop ~18,000)
Côteaux (pop ~21,000)
Port-à-Piment (pop ~19,000)

CEAC Power Grid

Solar 150 kW
Diesel Generator 400 kW
Length of Grid 28km
Houses connected 26km



Objective of Survey

The objective of the CEAC household survey were as follows evaluate,

- frequency of electric service, down time, technical response to problems, and quality of service.
- membership participation and communication from the CEAC management
- the loan program
- appliance purchases
- entrepreneurial activities and
- to explore two counterfactuals: a) what if there were no grid and hospital PV systems, b) what if the project had not supported provision of rechargeable and solar energy products. Put another way, in the absence of project activities, in what alternative ways would beneficiaries have satisfied energy demands, if at all, and what would be the impact of these alternative scenarios.

Survey Team

To accomplish this, the consultant commissioned and training a 4-person team to conduct a random survey. The four surveyor were all experience Haitian University students. All are in the top 5 percent level of scholastic achievement as measure by the Haitian States Bacc II exams. The surveyors were trained on June 12th to 15th. The survey was conducted from June 16th to June 23rd.

Sample Size

The intended sample size was 200 households, 100 CEAC member households connected to the HSE grid and 100 non-CEAC households not connected to the grid. We added an extra 2 sample

Selection Strategy

House were selected in clusters of ten distributed at systematic random points across the grid. Specifically, we use Google Earth to selected 21 points at systematic random intervals stretching from the beginning of the grid in Roche-a-Bateau to the end of the grid in Port-a-Piment. The GPS coordinates were programmed in the app, Mapsme, which was loaded onto Samsung tablets with built in GPS chips. The surveyors located each point and then sought the 5 households with official CEAC service (a counter) and the 5 households without CEAC service that were closest to the point.

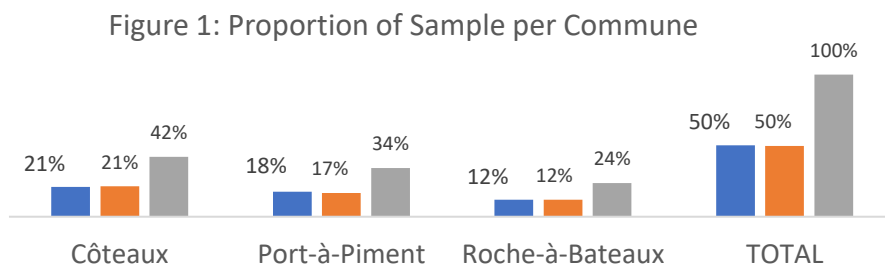


Table 1:

Location of Selected GPS Points	
Port-a-Piment	7
Coteaux	8
Roche-a-Bateau	7

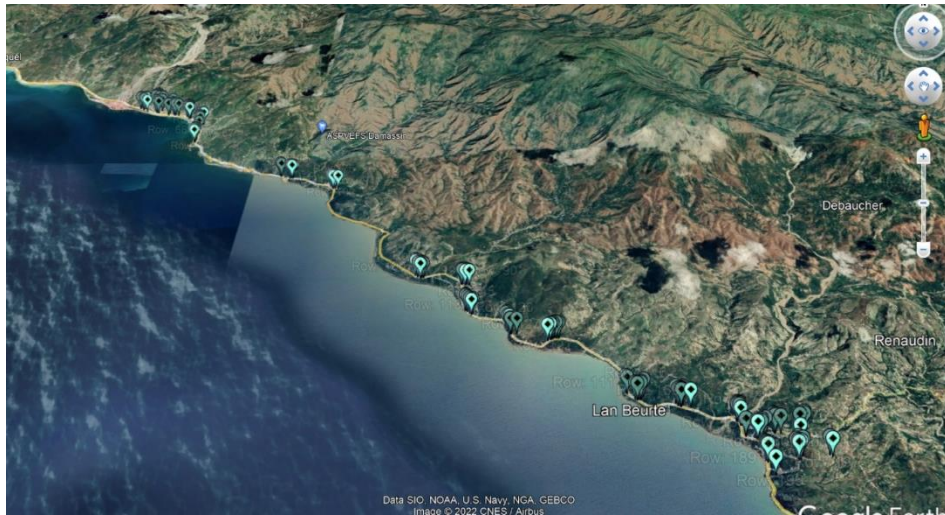


Figure 2: Satellite Photo of Selected Points

The final sample size per commune and per group (CEAC vs. Non-CEAC are given in Table 1.

County	Côteaux	Port-à-Piment	Roche-à-Bateaux	Total
CEAC grid	44	37	25	106
Not CEAC grid	45	35	25	105
Total	89	72	50	211

* There were 22 empty residences and one refusal. All were replaced by the next occupied home.

Units of Selection and Analysis

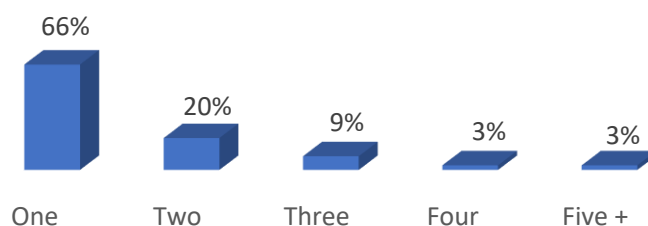
The units of analysis were households. Members of a household were defined as people who slept in the same house structure more often than elsewhere, had been doing so for at least six months, and in which all the members shared costs of meals. The survey measured both number of number of residences (or families) per house structure and it measure the number of inhabited house structures in a yard.

By these criteria, fully 92 percent of all selected households had only one residence (i.e. what we defined above as a household; six percent had two residences to, and only 1 percent had three residence; no house structure had more than three residences (see Table 1.1).

Regarding house structures per yard, 66 percent of yards had a single inhabited house structure in them, 20 percent had two, nine percent had three, three percent had four and three percent of yards had five or more inhabited house structures (see Figure 1.1).

One	92%
Two	6%
Three	1%

Figure 3: Number of Households in the Yard



Target Respondents

Household head was the target respondent, and fully 76 percent of respondents were the self-reported household head. In cases where the household head was not available, surveys interviewed any available household member who 18 years or older and said they could respond competently to questions about the person they considered to be the head of the household, about household economic activities, and about the household use of electricity. Sixty-one percent of respondents were female and the distribution of female vs. male respondents was approximately equal across all three counties and both treatment and control groups. The surveyors encountered only one 1 refusal

Figure 4: Proportion Respondents who Hshld Hd

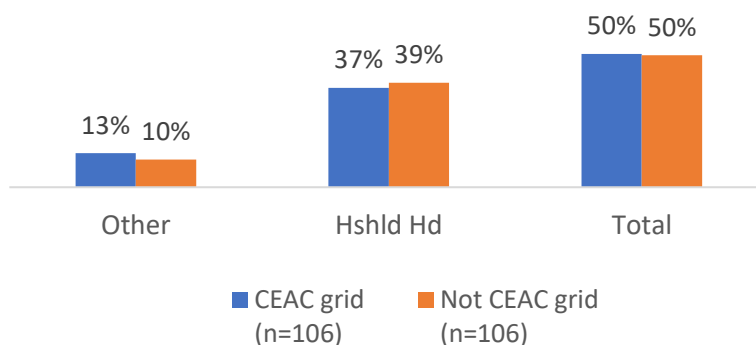
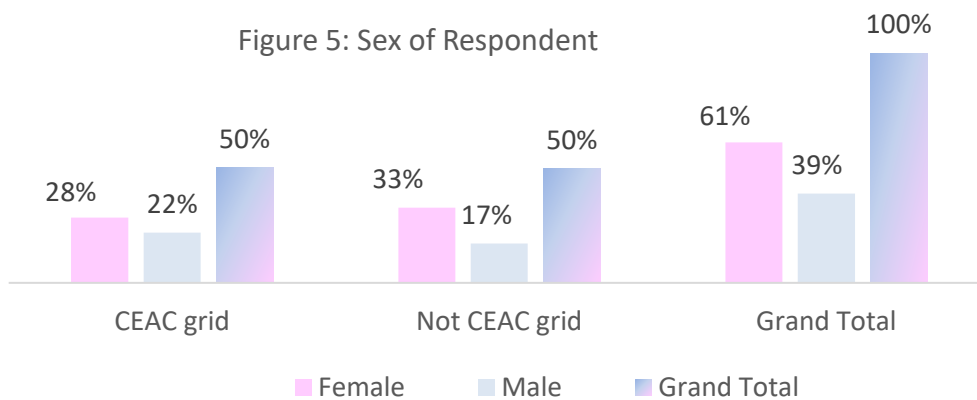


Figure 5: Sex of Respondent



Questionnaire (see questionnaire annex)

Questions asked of CEAC household respondents focused on connectivity, service, participation in CEAC as well as the cooperative operating protocol and membership participation. Other areas of interest were use of electricity, impact on living standard and activity (before and after grad), assessment of living standards by household profile and assets. Willingness and capacity to pay higher rates. And finally, recommendations.

Questions asked of respondents from **non CEAC households** helped evaluate the counter-factual: while CEAC households have been connected to the grid, what has happened to those households not connected to the grid. This means comparable living standard questions and alternative energy strategies, i.e. ownership or use of or access to solar panels, rechargers, or generators. Also included will be questions that evaluate benefits from the proximity to the grid, perceptions of the CEAC grid, interest in connecting and finally recommendations.

Household Profiles

Figure 6: Age Distribution Hs Hld Heads (N=211)

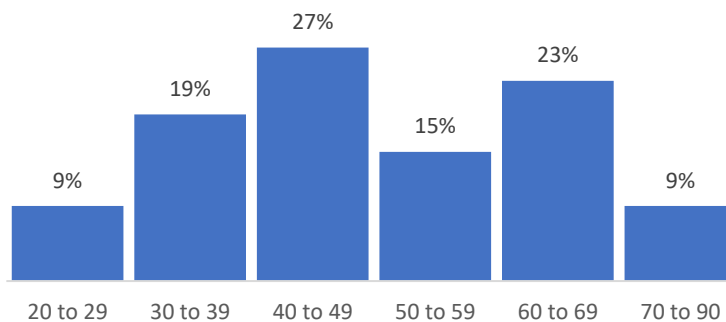


Figure 7: Educational Attainment of Hshld Hd (N=211)

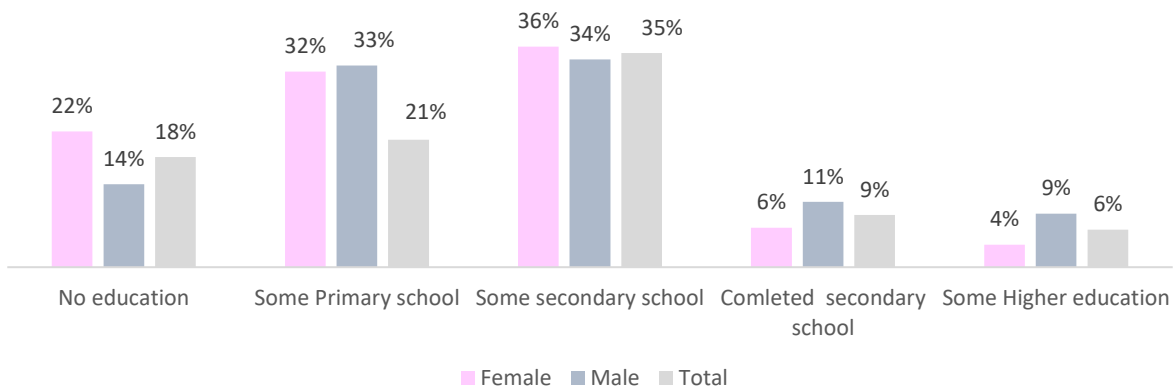


Figure 8:
Civil Status (N=211)

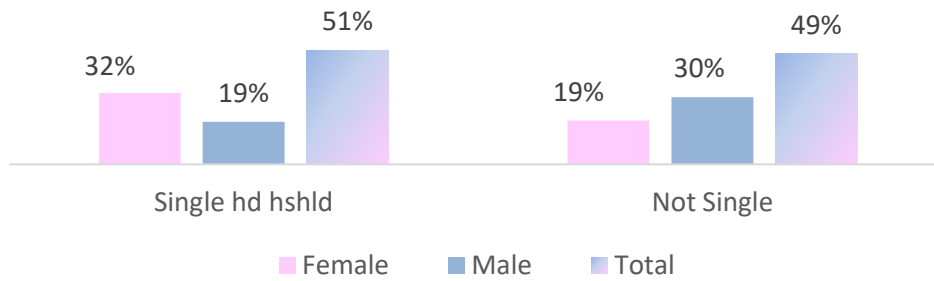


Figure 9:
Sex of Household Head

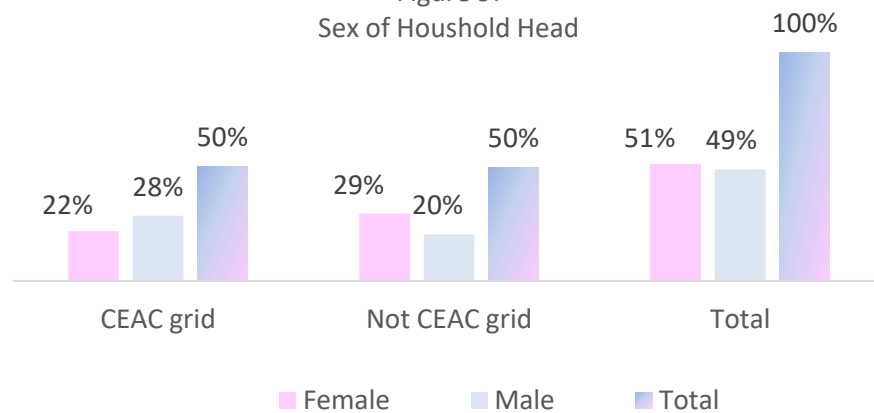
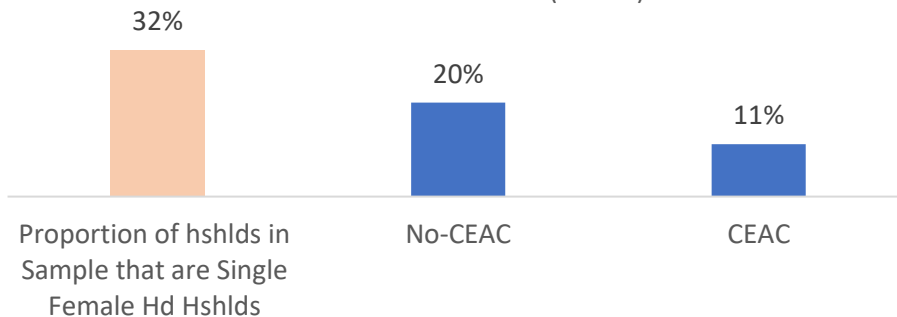


Figure 10:
Proportion Single Female Headed Hshld
with CEAC vs. No CEAC (N=211)



Household Sources of Income and Economic Activities

The main household source of income for those interviewed is by far fishing at 36 percent of household respondents. This is not typical of Haiti, where less than 5 percent of households have a member engaged in fishing or the fish trade. Rather it reflects the fact that the grid is on a coastal road; all households are within several hundred meters of the sea. The second most important source of income is Agriculture at 22 percent, skilled labor at seven percent, commerce at six percent, unskilled labor at five percent,

livestock at three percent, motorcycle taxi at three percent, and combining “professional” with “teacher” for four percent.

Important to point out that these figures are for the “main” source of income. The second most and third most important sources of income, Agriculture, livestock and fishing come through again as top sources of income. And if we combine all the three top sources of household, we get a clearer picture of livelihoods in the area, with fishing as one of the three main sources of income for 54 percent of all households, agriculture at 44 percent, livestock at 24 percent, skilled labor at 15 percent, unskilled labor at ten percent, commerce at eight percent, professional & teacher at six percent and motor taxi at five percent.

Also important to point out is that the figures do not necessarily mean that the house does not engage in an activity. For example, only 6 percent listed commerce as the most important activity, but we know from questions about household business activities summarized in Table 3 that more than 56 percent of households engage in some kind of “business”, fully 97 percent of which is a trade or vending activity.

Table 4: Most Important Sources of Household Income

1st Response			2nd Response			3rd Response		
Activity	Count	Percent	Activity	Count	Percent	Activity	Count	Percent
Fishing	77	36%	Nothing	85	40%	Nothing	151	72%
Agriculture	47	22%	Agriculture	31	15%	Livestock	15	7%
Skilled	15	7%	Livestock	29	14%	Agriculture	14	7%
Nothing	14	7%	Fishing	25	12%	Fishing	11	5%
Commerce	12	6%	Skilled	10	5%	Skilled	7	3%
Unskilled	11	5%	Unskilled	7	3%	Unskilled	5	2%
Livestock	7	3%	Commerce	3	1%	Taxi moto	3	1%
Taxi moto	6	3%	School teacher	3	1%	Commerce	2	1%
Professional	4	2%	Taxi moto	3	1%	Teacher	2	1%
Teacher	4	2%	Driver	2	1%	Professional	1	0%
Civil Servant	3	1%	Other	2	1%			
Charcoal	1	0%	Tailor	2	1%			
Driver	1	0%	Collect bottles	1	0%			
Menagere	1	0%	Events parties	1	0%			
Musician	1	0%	Handyman	1	0%			
Rents plywood	1	0%	Lottery	1	0%			
Salaried job	1	0%	Pension	1	0%			
Sells lottery	1	0%	Professional	1	0%			
Hair stylist	1	0%	Restaurant	1	0%			
Mechanic	1	0%	Mechanic	1	0%			
Tailor	1	0%	Wash cloths	1	0%			
Tutor	1	0%						

Figure 11: Top Hshld Sources of Income
(N=211)

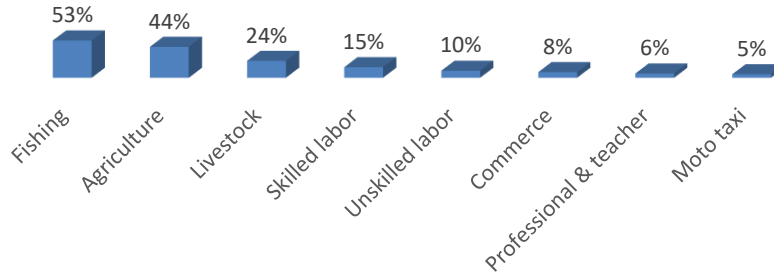


Figure 12: Comparison of Educational Level CEAC members to non-Members (N=211)

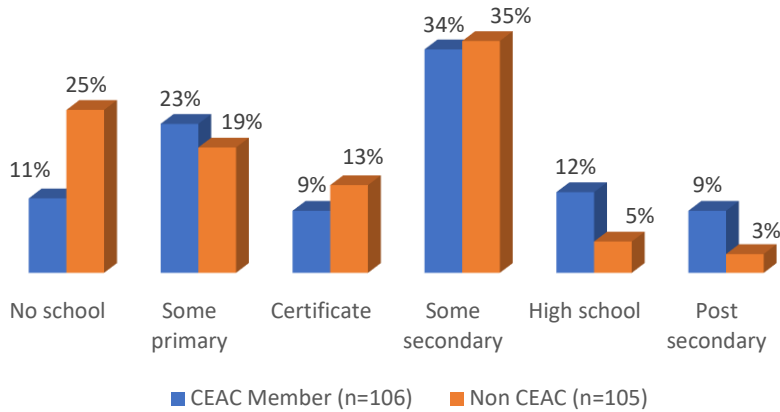
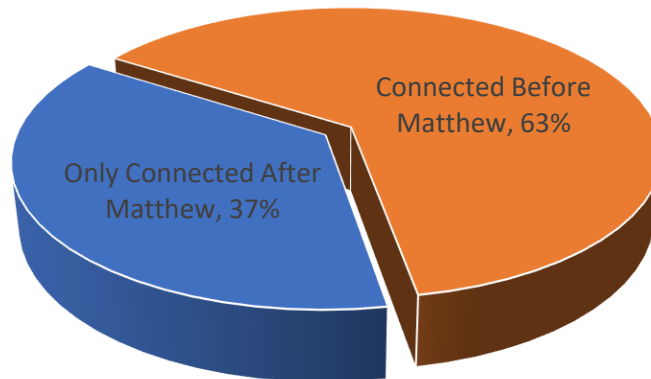


Chart 13:
Connected to CEAC Before vs. After Matthew



Location of Businesses	Percentage
Household based business	44%
Business outside house	14%
Business at house and outside	5%
Total with any Business	56%

Products	Count	Percent (n=92)
Carbonated beverages	32	35%
Sells cereal, flour, corn...	33	36%
Cosmetics, cloths, cleaning products	23	25%
Candy, cookies...	12	13%
Street food cooked	11	12%
Alcohol/rum	7	8%
Charcoal	6	7%
Kerosene	4	4%
Gasoline	2	2%
Building materials	3	3%
Motorparts	2	2%
Telephone cards	2	2%
Salt	2	2%
Coffee	1	1%
Other single mentions: cutlery, moto parts, school supplies, telephone cards, water, bakery, salt, rent room, car wash electronics, fix electronics, fix telephones, pig feed	10	11%

On average CEAC members have 25 percent high level of education (9.5 vs. 7.6 years). Non-CEAC are twice as like to have not education at all (25% vs. 11%).

Time	Number of Respondents	
	Re-connected to CEAC	First connected to CEAC
In the past 6 months	21	4
1 to 2 years past	6	6
6 to 12 months past	6	4
More than 3 years past	21	19
Do not know	13	6
TOTAL	67	39

County	Solar Panel	Delko	Grid EDH	Other Grid
Côteaux (n=44)	7%	2%	7%	2%
Port-à-Piment (n=37)	16%	14%	27%	11%
Roche-à-Bateaux (n=25)	8%	12%	20%	24%
Total (N=106)	10%	8%	17%	11%

County	Other Grid
Côteaux	Community group that had generator
Port-à-Piment	Community group that had generator
Port-à-Piment	Community group that had generator
Roche-à-Bateaux	Priest's house
Roche-à-Bateaux	Priest's house
Roche-à-Bateaux	Priest's house
Roche-à-Bateaux	Community group that had generator/Priest's house
Roche-à-Bateaux	Community group that had generator
Roche-à-Bateaux	Do not remember

Fully 60 percent of CEAC respondents say that they get enough electricity

Last Event CEAC Electric Went Out		How long was it out			
Time	Count	Percent	Time ²	Count ³	Percent ⁴
Less than 1 week past	9	8%	A few hours	13	12%
1 week past	3	3%	1 day	9	8%
2 weeks past	5	5%	2-3 days	12	11%
3 weeks past	5	5%	4-7 days	10	9%
Month past	5	5%	1 - 2 weeks	10	9%
2 months past	11	10%	3 weeks	1	1%
3 months past	5	5%	1 month	5	5%
4 to 6 months past	10	9%	More than 1 month	2	2%
6 months to 1 year past	10	9%	More than 2 months	10	9%
More than 1 year past	7	7%	Do not know	30	28%
Do not know	32	30%			
Never	4	4%			

County	Someone in house is a member of CEAC	% who attend CEAC meetings
Côteaux	29%	94%
Port-à-Piment	25%	100%
Roche-à-Bateaux	13%	100%
Total	67%	97%

Last time went to meeting	Côteaux	Port-à-Piment	Roche-à-Bateaux	TOTAL
2-3 days past	1	0	2	3
4-7 days past	9	0	4	13
1 - 2 weeks past	6	0	0	6
1 month past	5	9	1	15
More than 1 month	2	6	0	8
More than 2 months	0	6	3	9
Do not know	6	5	4	15
Total	29	26	14	69

County	Count	Percent
Côteaux	12	11%
Port-à-Piment	8	8%
Roche-à-Bateaux	7	7%
Grand Total	27	25%

Only 4 of the 27 correctly knew the name of the cooperative. Two said it was CEAC. One said it was FONKOZE and the remaining 20 said they did not know.

Table 14: Three Problems with CEAC Service (n=106)					
First CEAC Problem	Prct	Second CEAC Problem	Prct	Third CEAC Problem	Prct
Un dependable/Irregular service	45%	Un dependable/Irregular service	20%	New meters use electric too fast/too expensive	7%
New meters use electric too fast/too expensive	23%	New meters use electric too fast/too expensive	18%	Un dependable/Irregular service	7%
No communication/irresponsible management	10%	CEAC slow to respond to problems	12%	Tax too high	6%
CEAC slow to respond to problems	5%	No communication/irresponsible management	9%	CEAC slow to respond to problems	5%
No vendor nearby/available	2%	Tax too high	7%	No communication/irresponsible management	5%
Not 24/24	2%	No 24/24	4%	No vendor nearby/available	3%
No street lights	1%	Does not like payment system	1%	No 24/24	2%
Surges	1%	Low current	1%	Counter discharges	1%
They do not give enough electric per day	1%	No Assembly General	1%	Current low	1%
Welders make electric decline	1%	No vendor nearby/available	1%	Do not accept new applicants	1%
When rains no service	1%	When rains no service	1%	Lack of street lights	1%
Nothing	8%	Nothing	7%	No assembly general	1%
				No money, no service	1%
				When no telephone signal cannot buy service	1%

Not-Connected

Fully 103 of 105 Non-CEAC respondents said they wanted to be connected to the grid. The remaining two said they did not know if they wanted to be connected.

Non-CEAC Connected to electricity grid	9%
Ever been connected to an electricity grid	27%

County	Count
Côteaux	2
Port-à-Piment	3
Roche-à-Bateaux	4

Reasons	Count	Percent
I am on the list for CEAC	34	32%
Too expensive	37	35%
House not ready/disrepair/being built	10	10%
Not available here	2	2%
Renter	4	4%
Unnecessary	2	2%
Do not know	1	1%
Missing	15	14%

Source	Côteaux	Port-à-Piment	Roche-à-Bateaux	Total
CEAC	7	3	5	15
EDH	1	7	1	9
Other	2	0	1	3
Do not know	0	0	1	1
TOTAL	10	10	8	28

Preference	CEAC grid (n=106)	Not CEAC grid (n=105)
CEAC	52%	57%
Do not know	8%	10%
Own System	35%	31%

Electric Appliances and Use

Table 20: CEAC Members Three Advantages of Electric

Benefit 1st Citation	Percent	Benefit 2nd Citation	Percent	Benefit 3rd Citation	Percent
Lighting	30%	Refrigeration	17%	Lighting	8%
Business	20%	Business	12%	Telephone charging	8%
Radio/television	9%	Lighting	10%	Ironing	8%
Telephone charging	8%	Ironing	8%	Radio/television	7%
Refrigeration	7%	Radio/television	8%	Business	6%
Missing	6%	Telephone charging	6%	Blender	5%
Children studying/light	5%	Lighting/save money	4%	Fan	4%
Fan	5%	Refrigeration/Sell	3%	Refrigeration	3%
Ironing	4%	Comfort	1%	Nothing to add	27%
Nothing	3%	Fan	1%		
Television	2%	Refrigerator	1%		
Blender	1%	Save money	1%		
Lighting/save money	1%	Nothing to add	52%		

Table 21: Non-CEAC Members Three Advantages of Electric

Benefit 1st Citation	Percent	Benefit 2nd Citation	Percent	Benefit 3rd Citation	Percent
Business	19%	Lighting	20%	Blender	20%
Lighting	16%	Business	16%	Business	13%
Refrigeration	12%	Radio/television	8%	Fan	8%
Radio/television	11%	Telephone charging	8%	Food preparation	5%
Lighting	9%	Ironing	7%	Ironing	5%
Refrigeration/business	8%	Nothing	7%	Lighting	4%
Charge telephone	6%	Refrigeration	7%	Lighting/study	3%
Lighting/save money	4%	Refrigeration/business	7%	Radio/television	2%
Telephone charging	4%	Fast food preparation	4%	Refrigeration	2%
Lighting/studying	2%	Anyen	2%	Refrigeration/Business	1%
Fan	1%	Lighting/Study	2%	Telephone charging	1%
Ironing	1%	Lighting/Save money	2%		
Nothing	4%	Blender	1%		
		Lighting	1%		

Assets

Appliance/Service	Including 9 Non-CEAC Connected to Neighbor		Corrected for 9 Connected		Total
	CEAC grid	Not CEAC grid	CEAC grid	Not CEAC grid	
Radio	51%	30%	50%	30%	41%
Television	63%	12%	62%	9%	38%
Bank account	48%	18%	47%	17%	33%
Deep freezer	47%	7%	45%	5%	27%
Moto	35%	18%	34%	18%	27%
Cable	47%	6%	45%	4%	27%
Blender	40%	9%	40%	5%	24%
Fan	31%	7%	31%	4%	19%
Loan from an institution	30%	7%	28%	7%	18%
Propane burner	21%	6%	21%	4%	13%
Cooler	23%	4%	22%	3%	13%
Refrigerator	19%	3%	19%	1%	11%
Laptop	13%	3%	13%	2%	8%
Stove	14%	2%	14%	1%	8%
Mill (hand)	5%	4%	4%	4%	4%
Dory	6%	2%	6%	1%	4%
Truck	3%	0%	3%	0%	1%
Vehicle	2%	0%	2%	0%	1%
Ice maker	2%	0%	2%	0%	1%
Washing machin	2%	0%	2%	0%	1%
Mill (Electric)	1%	0%	1%	0%	0%
None	3%	46%	5%	47%	24%

Appliance/Service	After we had CEAC	Before we had CEAC	Do not remember	TOTAL
Television	53%	10%	0%	63%
Deep freezer	42%	6%	0%	47%
Cable	41%	7%	0%	47%
Radio	29%	21%	1%	51%
Fan	25%	7%	0%	31%
Propane burner	15%	6%	0%	21%
Refrigerator	11%	8%	0%	19%
Cooler	10%	12%	0%	23%
Loan from an institution	9%	19%	2%	30%
Moto	9%	25%	0%	35%
Bank account	7%	40%	2%	48%
Laptop	7%	7%	0%	13%
Stove	7%	8%	0%	14%
Vehicle	2%	0%	0%	2%
Truck	2%	1%	0%	3%
Dory	2%	4%	0%	6%
Washing machin	2%	0%	0%	2%
Ice maker	1%	1%	0%	2%

Good/Service	Past 6 months	6 to 12 months	1 to 2 years	More than 3 years	Do not know	Grand Total
Loan from an institution		1	3	2	1	7
Moto	5	2	3	9		19
Bank account	2		2	13	2	19
Dory				2		
Cable		1	4	1		6
Moto	5	2	3	9		19
Dory				2		
Television	1	2	5	5		13
Radio	11	8	8	5		32
Laptop			1	2		3
Propane burner			3	3		6
Stove			1	1		2
Cooler			2	2		4
Refrigerator	1			2		3
Deep freezer	1	1	2	3		7
Blender	1	2	1	5		9
Fan	3	2		2		7

Appliance	CEAC (n=106)	Not CEAC (n=105)	Total (N=211)
Blender	38%	39%	38%
Deep freezer	37%	57%	47%
Fan	35%	32%	34%
Washing machine	34%	7%	20%
Television	29%	64%	46%
Invertor	23%	11%	17%
Laptop	22%	7%	14%
Refrigerator	16%	21%	18%
Electric stove	13%	5%	9%
Ice maker	8%	3%	6%
Iron	8%	17%	13%
Radio	8%	18%	13%
Mill (Electric)	4%	2%	3%
Electric burner	2%	2%	2%
A/C	2%	0%	1%
Car Vacuum	1%	0%	0%
Microwave	1%	0%	0%
Sewing machine	1%	0%	0%
Printer	1%	0%	0%
Drill	1%	0%	0%
Wifi Router	1%	0%	0%

Light Main Source	CEAC grid	Not CEAC grid	Total
Electric lighting	97%	15% *	56%
Battery lamp	3%	18%	10%
Candles	0%	15%	8%
Kerosene lamp	0%	9%	4%
Kerosene lamp glass	0%	8%	4%
None	0%	8%	4%
Other	0%	15%	8%
Solar lamp	0%	12%	6%
Grand Total	100%	100%	100%

- All those in this category are connected to CEAC thru neighbor

Autonomous Sources of Power

When it came to autonomous power, the CEAC members were far more likely to own a solar panel, generator, batteries or any other related items. For example, 12 percent of CEAC vs. 4 percent of Non-CEAC respondents had any solar panels, 9 percent of CEAC vs. 1 percent of non-CEAC had a generator, 10 percent of CEAC vs. 4 percent of Non-CEAC respondents had any battery storage. Only 17 households had any type of autonomous solar electricity source. Eight of these households had only 1 solar panel, seven households had 2 solar panels, two households had 3 and one had 8 solar panels. Nine of the household respondents had no idea about the total wattage the panels provided, five reported 100 watts or less, one claimed to have 300 watts, another had a 600 watt generator and one 4,400 watt genset.

Nine household respondents reported that someone in the house owned a generator. Five had no idea how big the generator was, one said they had a 200 watt generator, two had a 400 watt generator, and one had a 1,500 watt generator.

Eleven household respondents claimed to have lead acid batteries. Two had only 1 battery, five had 2 batteries, two had 6 batteries, one had 12 batteries and one claimed to have 24 batteries.

Only 6 respondents said they had a solar regulator.

Ownership of autonomous power highlights the relative poverty of CEAC non-members. Only four of them had a solar panel. Three had only one panel, one had two panels. None knew how many watts the panels were, none owned a generator, only two had lead acid battery storage (each had two batteries), only one had any kind of inverter and only one had a solar regulator.

Table 27: Autonomous Power Sources

Power Item	CEAC grid (n=106)	Not CEAC grid (n=105)	Total (N=211)
Solar panel	12%	4%	8%
Generator	9%	1%	5%
Solar charger	1%	1%	1%
Lead Acid Batteries	10%	4%	7%
Solar panel regulator	5%	2%	3%
Inverter	8%	2%	5%

There seems to be a sense that CEAC electricity is expensive, even though it is currently priced at 21 HTG (~17 US cents per kW/hour), about one fourth of the cost and a price that has not changed since 2015, when 21 HTG had almost three times the value at 45 US cents. During interviews, respondents almost universally complained about the exorbitant cost of CEAC electricity, while also fully aware of skyrocketing price of petroleum. The trend came also through in the survey question about how much people would be willing to pay if CEAC shut down and they had to purchase electricity from another entity. Fully, 54 percent of CEAC respondents said they could only pay less, 28 percent indicated they could pay the same, and only 13 percent indicated they could and would pay more.

HTG	USD	Hshlds
250 to 500	2.50 to 5.00	20
501 to 1,000	5.01 to 10.00	31
1,001 to 1,500	10.01 to 15.00	20
1,501 to 2,000	15.01 to 20.00	10
2,001 to 2,500	20.01 to 25.00	7
2,501 to 3,000	25.01 to 30.00	4
3,001 to 3,500	30.01 to 35.00	2
3,501 to 4000	35.01 to 40.01	2
4,001 to 5000	40.01 to 50.00	5
5,001 to 7000	50.01 to 70.00	1
15,000	150.00	2

Credit and Borrowing

Responses	Count	Percentage	Average
Pay less	57	54%	(\$15.34)
Pay same	30	28%	\$0.00
Pay more	14	13%	\$6.06

Category	CEAC (n=106)	Not CEAC (n=105)
Hshld member of a credit union (CR)	29%	7%
Borrowed money from CR in past year	11%	4%
Borrowed money from another institution in past year	17%	7%
Borrowed money from friend or family in past year	30%	21%

Activity	Credit Union		Other Institution		Family & Friends		TOTAL
	CEAC	Not CEAC	CEAC	Not CEAC	CEAC	Not CEAC	
business or trade	7%	4%	12%	3%	12%	5%	21%
buy land	1%	0%	1%	0%	0%	0%	1%
education	1%	0%	1%	1%	5%	6%	7%
fix house	2%	0%	0%	1%	6%	4%	6%
School	1%	0%	0%	0%	0%	0%	0%
buy electric applinc	1%	0%	1%	0%	0%	0%	1%
Invest in garden	0%	0%	1%	0%	0%	0%	0%
medical expenses	0%	0%	0%	1%	1%	3%	2%
Provisions	0%	0%	1%	1%	6%	3%	5%
Debt	0%	0%	0%	0%	0%	1%	0%
Funeral	0%	0%	0%	0%	1%	0%	0%
Total	12%	4%	17%	7%	30%	21%	45%

ANNEX of Survey Report

CEAC Questionnaire

KREYOL
ANKET UNEP CEAC

ENGLISH
SURVEY UNEP CEAC

<u>Metadata</u>	<u>Meta Data</u>
1. Dat	1. Date
2. Le	2. Time
3. Eske sa yon anket: CEAC o Non	3. What type of survey is this? (CEAC vs. Not
4. Non ankete a	4. Enumerators initials
5. Ki Komin?	5. Commune
6. Katye	6. Katye
<u>Intwodiksyon</u>	<u>Introduction</u>
Bonjou/Bonswa Mwen se ankete ENTEL Nap fe yon anket pou yon oganisayon ki rele UNEP. Se li ki finanse grid CEAC la. Kesyon yo senmp. Nap poze kek kesyon sou kay la, komsa konbyen moun ki rete ladan, byen nou genyen epi ki sous kouran nou genyen epi ki jan ou sevi avek kouran. Objektif la se pou konprann pi byen empak grid elektrik CEAC la sou lavi moun bo isit. Pa gen okenn sekre ladan, men kamenm, tout sa ou di se ant nou menm, nou pap pataje enfomasyon avek okenn lot moun ni non ou. Entevu ap pran 15 minit. Eske ou dako pou patisipe?	Hello. My name is surveyor NAME. We are conducting a survey for UNEP, the organization that financed the CEAC grid. Your house has been chosen to participate. The questions are simple. Such as about the household, how many people live in it, goods they own, sources of electricity and use of electricity. The reason we are conducting the survey is to better understand the impact of the electric grid in the area. There is nothing secret about the questions, but just the same, we will not share with anyone your responses or your name. The survey will take about 15 minutes. Do you agree to participate...
<u>Done sou repondan</u>	<u>Data on respondent</u>
1. Seks repondan ?	1. Sex of the respondent
2. Bam ti non paw	2. What is your nickname?
3. Laj repondan	3. Age of respondent
4. Ki sa chef kay sa pou w?	4. What is your relation to the selected household head?
<u>Determinasyon Kay/fanmi wap ankete</u>	<u>Determination of hshld/family to survey</u>
1. Konbyen kay nan lakou a ki gen moun ki rete ladan?	1. How many inhabited houses in the yard?
2. ANKETE ENTEL, chwazi kay kote repondan ap domi epi ou pral poze kesyon sou li..	2. NAME SURVEYOR: select the house where the respondent sleeps and you will ask about ti.
3. Eske kay sa konekte a CEAC?	3. Is that houseconnected to CEAC?
4. Si fanmi sa pa konekte avek grid la, fok ou swa chwazi lot ki konekte avek grid la, oswa al nan pwochen kay ki konekte avek grid la.	4. If the house is not connected to CEAC, you either have to choose another, or you have to skip this house and go to the next that has a CEAC grid connection
5. Eske se yon sel fanmi ki rete nan kay la avek ou?	5. Is the house a single residence?
6. Konbyen fanmi gen nan kay la?	6. How many families/residences in the house?
7. Eske tout fe manje ansanm?	7. Do the people in all these families eat together?

8. Ankete ANKETE ENTEL si tout fe manje ansanm, fok ou konsidere li kom yon sel fanmi.	8. Surveyor NAME SURVEYOR, if all of the families/residences make food together, you should consider this as a single family/residence.
9. Konbyen fe manje ansanm?	9. How many make food together?
10. Ankete ANKETE ENTEL fok ou konsidere fanmi ki fe manje ansanm kom yon sel fanmi. Wap konsidere yo kom yon "kay" epi se ou fanmi sa wap fe anket.	10. Surveyor NAME SURVEYOR: You must consider those houses that make food together as a single family and focus on them as the "household" that you will gather data about.
<u>Chef kay la</u>	<u>Household Head</u>
Kounyea mwen pral poze kek kesyon sou chef kay la ke nou chwazi	Now I'm going to ask some questions about the household head we chose
1. Siyati chef kay la	1. Lastname of the head of household
2. Prenon chef kay la	2. First name of the head of household
3. Seks chef kay la?	3. Sex of the head of household
4. Laj li	4. Age
5. Ki pi gwo klas chef kay nou chwazi te fe?	5. What is the highest grade the selected household head completed in school?
<u>Determinasyon eta sivil</u>	<u>Determination of civil status</u>
1. Li se, (lis estate sivil)	1. He/she is, (list of civil statuses)
2. Eske chef kay nou seleksyone gen yon gason/fanm kap viv avek ou nan kay la oswa yon ki kontribiyè a sipo kay la (plante jaden, bay kob pou manje...)?	2. Does the selected household head have a man/woman living with you in the house or who contributes to the upkeep of the household?
3. Eske se mari marye pal li ye?	3. Is it her legal spouse?
4. Si wi,	4. If yes,
5. Eske se mari madam marye pal li ye?	5. Is it his legal spouse that lives with him?
<u>Determinasyon kantite moun ki rete nan kay la</u>	<u>Determination # people in hshld</u>
M pral poze kek ti kesyon sou konbyen moun rete nan kay la ak laj moun yo. Map poze kesyon de fi, epi apre m ap pose kesyon de gason. (pa bliye pou konte repondan)	Now I am going to ask you how many people live in your household. I am going to ask how many females and then, after that, I am going to ask about the males. (do not forget to count the respondent)
1. Apa de chef kay la, Konbyen moun antotal ki rete nan kay la?	1. Apart from the hshld head we selected, how many people in the house?
2. Konbyen se gason?	2. How many are male?
3. Konbyen se fi?	3. How many are female?
4. Laj tout gason	4. Age of each male
5. Laj tout male	5. Age of each female

Aktivite Ekonomik Kay La	Household Economic Activity
Kounyea m pral poze kek kesyon sou ki jan moun nan ka la chache lavi	Now I am going to ask some questions on how people in the household earn a living.
1. Ki premye aktivite ou te genyen ki plis antre lajan nan kay la? (mande pou kaptire jis twa aktivite).	2. Most important source of household income (asked to capture top 3 activities).
3. Eske nou gen yon aktivite biznes nan kay la?	4. Does anyone in the house have any type of business they do in the house? (asked to capture up to 3 businesses conducted within household)
5. Eske gen moun nan kay la ki gen yon aktivite biznes deyo kay la? (poze pou kaptire jis twa biznes deyo kay la)	6. Does anyone in the house have any type of business they do outside of the house? (asked to capture up to 3 businesses conducted outside household)
Byen Kay	Household Assets
1. Kisa nan lis sa omwens yon moun nan kay la genyen?	1. What on the following list does at least one person in the house own?
a) Kante bank	a) Bank account
b) Akse a mikro kredi	b) Loan from an institution
c) Moto	c) Moto
d) Machin	d) Vehicle
e) Kamion	e) Truck
f) Kanot	f) Dory
g) Cab (pou chen televizyon)	g) Cable
h) Televisyon	h) Television
i) Radyo	i) Radio
j) Laptop	j) Laptop
k) Recho gaz propan	k) Propane burner
l) Fou	l) Stove
m) Igloo	m) Cooler
n) Frijide	n) Refrigerator
o) Frize	o) Deep freezer
p) Machin ki fe glas	p) Ice maker
q) Washing machin	q) Washing machin
r) Blende	r) Blender
s) Moulen (ki sevi ak kouran)	s) Mill (Electric)
t) Moulen (ki sevi ak men)	t) Mill (hand)
u) Ventilte	u) Fan
v) Lot	v) Other
2. Pou chak byen moun kay la genyen, eske yo jwenn ni anvan oswa apre koneksyon CEAC?	2. For each asset, did they come to own it before or after they connected to CEAC?

Aparey moun kay la anv genyen	Appliances wanted
1. Di m 3 aparey elektrik oswa aparey nou nan kay la ta plis renmen genyen	1. Tell me 3 electric appliances or apparatuses people in the house would most appreciate obtaining
<u>Limye</u>	<u>Lighting</u>
1. Ki tip limye ou plis sevi nan kay la?	1. What is the main type of lighting you use in the house?
a) Okenn	a) None
b) Limye ki sevi avek kouran	b) Electric lighting
c) Lanp gridap	c) Kerosene lamp
d) Lanp sole	d) Solar lamp
e) Lanp batri	e) Battery lamp
f) Chandal	f) Candles
g) Lot	g) Other
2. Ki 2eme tip limye ou plis sevi nan kay la?	2. What is the 2 nd main type of lighting you use in the house?
<u>Aparey Kouran</u>	<u>Energy Products</u>
1. Eske gen moun nan kay la ki gen omwens youn nan lis sa yo?	1. And at the present what on the list does at least one person in the house have at least one of?
a) Pano Soley	a) Solar panel
b) Delko	b) Generator
c) Chaje solar	c) Solar charger
d) Gwo batri 6 oswa 12 volt	d) Heavy duty rechargeable battery
e) Regulate	e) Solar panel regulator
f) Envete	f) Invertor
g) Okenn nan lis la	g) None
2. Pou chak byen moun kay la genyen:	2. For each item the household has:
a) Konbyen pano soley?	1. How many solar panels?
b) Konbyen watt total ou gen nan pano Soley?	2. Total watt in solar panels?
c) Konbyen delko nou genyen?	3. How many generators?
d) Konbyen watt pi gwo delko moun nan genyen delko?	4. How many watts is the biggest generator?
e) Konbyen gwo batri 6 oswa 12 volt?	5. How many duty rechargeable batteries?
f) Konbyen watt regulate li ye?	6. How many watts is the solar panel regulator?
g) Konbyen watt envete li ye?	7. How many watts is the invertor?

Kouran CEAC	Electricity CEAC
1. Kounyea, mwen pral poze kek kesyon sou kouran CEAC la.	1. Now I am going to ask some questions about CEAC and the service you get.
2. Konbyen kob nou depanse pa mwa sou kouran CEAC?	2. How much does the hshld spend per month on electric?
Kantite lajan	Amount
Nan kiyes	Currency
3. Eske nou te konekte avek CEAC anvan Mathew?	3. Where you connected to CEAC before Matthew?
Si wi, Ki le nou te jwenn koneksyon CEAC anko apre Mathew?	If yes, When did you get connected to CEAC again after Matthew?
4. Ki le nou te jwenn koneksyon CEAC?	4. When did you get connected to CEAC?
5. Anvan nou te gen koneksyon avek CEAC, eske ou te gen lot sous kouran?	5. Before you were connected to the CEAC grid, did you have electricity?
Si wi, Kisa li te ye?	If yes, What was the source(s)?
6. Ki twa pi gwo benefis ki gen nan kouran?	6. Three biggest benefits from having electric, what are they?
7. Twa pi gwo pwoblèm ou konn genyen avek kouran CEAC?	8. Three biggest problems you have with the electric from CEAC?
9. Si nou ka chwazi, epi yon oganis ta fe kado nouvo sistem pano soley, eske nou nan kay la ta prefere pwop sistem pano soley paw pesonal oswa yon kensksyon avek CEAC?	9. If you could choose, and an organization gifted you a new system of solar panels and batteries, what do you think would be the preference of everyone in the house. to own a private household system or to be connected to CEAC?
Si wi,	If yes,
1. Poukisa wi?	1. Why do you say yes?
2. Eske nou ta ka jere / enstale pwop sistem pa w?	2. Could you manage/install own system
3. Ki moun ki ta enstale li?	3. Who would install it
10. Si nou pedi elektrik CEAC net, epi ou tap blije peye yon konpayi prive, konbyen nou nan kay la ta pi plis ka peye pa mwa?	10. If you lost your electric completely, as in CEAC shut down, and you had to pay a private company, what is the most money you think you and the rest of people in the house could/would pay per month?
Kantite lajan	Amount
Nan kiyes	Currency
11. Eske nou nan kay la santi w gen ase kouran?	11. Is the general feeling in the house that you get enough electricity?
12. Denye fwa elektrik la te tonbe, ki le li te ye?	12. Last time the electric went out, when was it?
13. Pou konbyen tan li te tonbe?	13. For how long was it out?

Kredi	Credit
Mwen pral poze kek kesyon sou kooperatif kap bay kredi	I am going to ask some questions about credit unions
1. Eske gen moun nan kay la ki se manm yon kooperatif?	1. Is anyone in the household a a member of a credit union
Si wi,	If yes,
Ki jan kooperatif rele?	What is the name of the Credit Union?
Nan denye 1 an, eske omwens yon moun nan kay la te prete kob nan men kooperatif sa?	In the past year has at least one person in the house borrowed money from that credit union?
Ki pi gwo bagay ki te fet ak kob prete sa?	What is the most important thing that was done with money borrowed in that way?
2. Nan denye 1 an, eske omwens yon moun nan kay te resevwa yon kredi nan men yon lot enstitisyon ki konn bay kredi?	2. In the past year has at least one person in the house borrowed money from another institution?
Si wi,	If yes,
Ki pi gwo bagay ki te fet ak kob prete sa?	What is the most important thing that was done with money borrowed in that way?
3. Nan denye ane, eske omwens yon moun nan kay la te prete oubyen sevi avek kob ki sot nan men yon zanmi, fanmi, patwon oubyen vwazen?	3. In the past year has at least one person in the house borrowed money from a friend, family, patrone or neighbor?
Si wi,	If yes,
Ki pi gwo bagay ki te fet ak kob prete sa?	What is the most important thing that was done with money borrowed in that way?
Kooperatif CEAC	CEAC Coop
Mwen pral poze kek kesyon sou kooperatif CEAC	I am going to ask some questions about the CEAC coop
1. Eske gen moun nan kay la ki manb CEAC?	1. Is there anyone in the house who is a a member of CEAC
Si wi,	If yes,
Yo konn asiste reyinyon CEAC?	Does the person/people attend CEAC meetings?
Denye reyinyon CEAC li/yo te patisipe, ki le li te ye?	Last CEAC meeting the person attended, when was it?
2. Ou okouran ke manb CEAC gen akse a yon pwogram spesyal nan kooperatif pou prete kob?	2. Are you aware that members of CEAC have a special loan program at the cooperative?
Si wi, Ki jan kooperatif sa rele?	If yes, What's the name of that cooperative?

Lot Metadata	More Meta Data
Nou presk fini. Mwen jis ta vle mande de ti sevis pou konpayi ki bam djòb la ka verifiye ke mwen vreman fe yon entevu avek nou.	We are about to finish. I would like to ask two more quick questions so that I can have evidence for my employers that I did the survey.
Ki nimewo telefòn ou oubyen yon nimewo yo ka jwenn ou?	Telephone number 1
2eme numewo telefon	Telephone number 2
Eske ou gen yon pyes idantite nan min?	Do you have an ID card handy?
Eske mwen met tire foto de li	May I take a picture of your ID?
Pran foto a	Take photo
M ka pran foto de ou avek fanmi o?	May I take a picture of you and your family?
Pran foto a	Take photo
Eske nou ka itilize fotow poun fe animasyon?	Can we use the photo for information purposes?
Pran koodone GPS	GPS Coordinates

CEAC Questionnaire

ANKET UNEP CEAC**SURVEY UNEP CEAC**

<u>Metadata</u>	<u>Meta Data</u>
7. Dat	7. Date
8. Le	8. Time
9. Eske sa yon anket: CEAC o Non	9. What type of survey is this? (CEAC vs. Not
10. Non ankete a	10. Enumerators initials
11. Ki Komin?	11. Commune
12. Katye	12. Katye
<u>Intwodiksyon</u>	<u>Introduction</u>
Bonjou/Bonswa Mwen se ankete ENTEL Nap fe yon anket pou yon oganisasyon ki rele UNEP. Se li ki finanse grid CEAC la. Kesyon yo senmp. Nap poze kek kesyon sou kay la, komsa konbyen moun ki rete ladan, byen nou genyen epi ki sous kouran nou genyen epi ki jan ou sevi avek kouran. Objektif la se pou konprann pi byen empak grid elektrik CEAC la sou lavi moun bo isit. Pa gen okenn sekre ladan, men kamenm, tout sa ou di se ant nou menm, nou pap pataje enfomasyon avek okenn lot moun ni non ou. Entevu ap pran 15 minit. Eske ou dako pou patisipe?	Hello. My name is surveyor NAME. We are conducting a survey for UNEP, the organization that financed the CEAC grid. Your house has been chosen to participate. The questions are simple. Such as about the household, how many people live in it, goods they own, sources of electricity and use of electricity. The reason we are conducting the survey is to better understand the impact of the electric grid in the area. There is nothing secret about the questions, but just the same, we will not share with anyone your responses or your name. The survey will take about 15 minutes. Do you agree to participate...
<u>Done sou repondan</u>	<u>Data on respondent</u>
5. Seks repondan ?	5. Sex of the respondent
6. Bam ti non paw	6. What is your nickname?
7. Laj repondan	7. Age of respondent
8. Ki sa chef kay sa pou w?	8. What is your relation to the selected household head?
<u>Determinasyon Kay/fanmi wap ankete</u>	<u>Determination of hshld/family to survey</u>
11. Konbyen kay nan lakou a ki gen moun ki rete ladan?	11. How many inhabited houses in the yard?
12. ANKETE ENTEL, chwazi kay kote repondan ap domi epi ou pral poze kesyon sou li..	12. NAME SURVEYOR: select the house where the respondent sleeps and you will ask about ti.
13. Eske kay sa konekte a CEAC?	13. Is that house connected to CEAC?
14. Si fanmi sa pa konekte avek grid la, fok ou swa chwazi lot ki konekte avek grid la, oswa al nan pwochen kay ki konekte avek grid la.	14. If the house is not connected to CEAC, you either have to choose another, or you have to skip this house and go to the next that has a CEAC grid connection
15. Eske se yon sel fanmi ki rete nan kay la avek ou?	15. Is the house a single residence?
16. Konbyen fanmi gen nan kay la?	16. How many families/residences in the house?
17. Eske tout fe manje ansanm?	17. Do the people in all these families eat together?

18. Ankete ANKETE ENTEL si tout fe manje ansanm, fok ou konsidere li kom yon sel fanmi.	18. Surveyor NAME SURVEYOR, if all of the families/residences make food together, you should consider this as a single family/residence.
19. Konbyen fe manje ansanm?	19. How many make food together?
20. Ankete ANKETE ENTEL fok ou konsidere fanmi ki fe manje ansanm kom yon sel fanmi. Wap konsidere yo kom yon "kay" epi se ou fanmi sa wap fe anket.	20. Surveyor NAME SURVEYOR: You must consider those houses that make food together as a single family and focus on them as the "household" that you will gather data about.
<u>Koneksyon a yon grid</u>	<u>Connection to an electric grid</u>
1. Eske li konekte avek yon grid elektrik?	1. Is it connected to any type of electricity grid?
2. Poukisa ou pa konekte avek yon grid elektrik?	2. Why aren't you connected to a grid?
3. Ankete ANKETE ENTEL esplike ki jan li konekte epi avek ki grid:	3. Surveyor NAME SURVEYOR: Explain how they're connected and with what grid:
4. Eske ou te janm konekte avek yon grid elektrik?	4. Have you ever been connected to any type of electricity grid?
5. Kiyes ki te responsab grid la?	5. Who was responsible for the grid?
6. Ki denye ane grid sa te bay kouran?	6. What was the last year that grid gave electricity?
<u>Chef kay la</u>	<u>Household Head</u>
Kounyea mwen pral poze kek kesyon sou chef kay la ke nou chwazi	Now I'm going to ask some questions about the household head we chose
6. Siyati chef kay la	6. Lastname of the head of household
7. Prenon chef kay la	7. First name of the head of household
8. Seks chef kay la?	8. Sex of the head of household
9. Laj li	9. Age
10. Ki pi gwo klas chef kay nou chwazi te fe?	10. What is the highest grade the selected household head completed in school?
<u>Determinasyon estate sivil</u>	<u>Determination of civil status</u>
6. Li se, (lis estate sivil)	6. He/she is, (list of civil statuses)
7. Eske chef kay nou seleksyone gen yon gason/fanm kap viv avek ou nan kay la oswa yon ki kontribiye a sipo kay la (plante jaden, bay kob pou manje...)?	7. Does the selected household head have a man/woman living with you in the house or who contributes to the upkeep of the household?
8. Eske se mari marye pal li ye?	8. Is it her legal spouse?
9. Si wi,	9. If yes,
10. Eske se mari madam marye pal li ye?	10. Is it his legal spouse that lives with him?

Determinasyon kantite moun ki rete nan kay la	Determination # people in hshld
M pral poze kek ti kesyon sou konbyen moun rete nan kay la ak laj moun yo. Map poze kesyon de fi, epi apre m ap pose kesyon de gason. (pa bliye pou konte repondan)	Now I am going to ask you how many people live in your household. I am going to ask how many females and then, after that, I am going to ask about the males. (do not forget to count the respondent)
6. Apa de chef kay la, konbyen moun antotal ki rete nan kay la?	6. Apart from the hshld head we selected, how many people in the house?
7. Konbyen se gason?	7. How many are male?
8. Konbyen se fi?	8. How many are female?
9. Laj tout gason	9. Age of each male
10. Laj tout male	10. Age of each female
Aktivite Ekonomik Kay La	Household Economic Activity
Kounyea m pral poze kek kesyon sou ki jan moun nan ka la chache lavi	Now I am going to ask some questions on how people in the household earn a living.
7. Ki premye aktivite ou te genyen ki plis antre lajan nan kay la? (mande pou kaptire jis twa aktivite).	8. Most important source of household income (asked to capture top 3 activities).
9. Eske nou gen yon aktivite biznes nan kay la?	10. Does anyone in the house have any type of business they do in the house? (asked to capture up to 3 businesses conducted within household)
11. Eske gen moun nan kay la ki gen yon aktivite biznes deyo kay la? (poze pou kaptire jis twa biznes deyo kay la)	12. Does anyone in the house have any type of business they do outside of the house? (asked to capture up to 3 businesses conducted outside household)

<u>Byen Kay</u>	<u>Household Assets</u>
2. Kisa nan lis sa omwens yon moun nan kay la genyen?	3. What on the following list does at least one person in the house own?
w) Kante bank	w) Bank account
x) Akse a mikro kredi	x) Loan from an institution
y) Moto	y) Moto
z) Machin	z) Vehicle
aa) Kamion	aa) Truck
bb) Kanot	bb) Dory
cc) Cab (pou chen televizyon)	cc) Cable
dd) Televisyon	dd) Television
ee) Radyo	ee) Radio
ff) Laptop	ff) Laptop
gg) Recho gaz propan	gg) Propane burner
hh) Fou	hh) Stove
ii) Igloo	ii) Cooler
jj) Frijide	jj) Refrigerator
kk) Frize	kk) Deep freezer
ll) Machin ki fe glas	ll) Ice maker
mm) Washing machin	mm) Washing machin
nn) Blende	nn) Blender
oo) Moulen (ki sevi ak kouran)	oo) Mill (Electric)
pp) Moulen (ki sevi ak men)	pp) Mill (hand)
qq) Ventilte	qq) Fan
rr) Lot	rr) Other
4. Chak byen moun kay la genyen, kile ou jwenn li?	2. For each asset, when did you get it?
a) Nan denye 6 mwa	a) In the past 6 months
b) 6 a 12 mwa pase	b) 6 to 12 months past
c) 1 jis 2 ane pase	c) 1 to 2 years past
d) Plis ke 3 ane pase	d) More than 3 years past
e) Pa konnen	e) Do not know

<u>Limye</u>	<u>Lighting</u>
1. Ki tip limye ou plis sevi nan kay la?	1. What is the main type of lighting you use in the house?
h) Okenn	h) None
i) Limye ki sevi avek kouran	i) Electric lighting
j) Lanp gridap	j) Kerosene lamp
k) Lanp sole	k) Solar lamp
l) Lanp batri	l) Battery lamp
m) Chandal	m) Candles
n) Lot	n) Other
2. Ki 2eme tip limye ou plis sevi nan kay la?	2. What is the 2 nd main type of lighting you use in the house?
<u>Aparey Kouran</u>	<u>Energy Products</u>
3. Eske gen moun nan kay la ki gen omwens youn nan lis sa yo?	2. And at the present what on the list does at least one person in the house had at least one of?
h) Pano Soley	h) Solar panel
i) Delko	i) Generator
j) Chaje solar	j) Solar charger
k) Gwo batri 6 oswa 12 volt	k) Heavy duty rechargeable battery
l) Regulate	l) Solar panel regulator
m) Envete	m) Invertor
n) Okenn nan lis la	n) None
4. Pou chak byen moun kay la genyen:	3. For each for item the household has:
h) Konbyen pano soley?	8. How many solar panels?
i) Konbyen watt total ou gen nan pano Soley?	9. Total watt in solar panels?
j) Konbyen delko nou genyen?	10. How many generators?
k) Konbyen watt pi gwo delko moun nan genyen delko?	11. How many watts is the biggest generator?
l) Konbyn gwo batri 6 oswa 12 volt?	12. How many duty rechargeable batteries?
m) Konbyen wat regulate li ye?	13. How many watts is the solar panel regulator?
n) Konbyen watt envete li ye?	14. How many watts is the invertor?

3. Eske nou ta vle kay la konekte avek grid electric CEAC?	3. Is the general feeling in the house that you want to be connected to the CEAC grid?
Si non,	If yes,
Pou ki non?	Why not?
4. Si nou ka chwazi, epi yon oganis ta fe kado nouvo sistem pano soley, eske pou panse nou ta preferè pwop sistem pano soley paw pesonal oswa yon koneksyon avek CEAC?	4. If you and the people in the house could choose, and an organization gifted you a new system of solar panels and batteries, would you prefer to own a private household system or to be connected to CEAC?
Si wi,	If yes,
Poukisa wi?	Why do you say yes?
Eske nou ta ka jere / enstale pwop sistem pa w?	Could you manage/install own system
Ki moun ki ta enstale li?	Who would install it
5. Ki twa benefis ki gen nan kouran?	5. Tell me three advantages can you think of that you would gain?
6. Di m 3 aparey elektrik oswa aparey nou nan kay la ta plis renmen genyen	6. Tell me 3 electric appliances or apparatuses people in the house most appreciate obtaining

Kredi	Credit
Mwen pral poze kek kesyon sou kooperatif kap bay kredi	I am going to ask some questions about credit unions
2. Eske gen moun nan kay la ki se manm yon kooperatif?	2. Is anyone in the household a a member of a credit union
Si wi,	If yes,
Ki jan kooperatif rele?	What is the name of the Credit Union?
Nan denye 1 an, eske omwens yon moun nan kay la te prete kob nan men kooperatif sa?	In the past year has at least one person in the house borrowed money from that credit union?
Ki pi gwo bagay ki te fet ak kob prete sa?	What is the most important thing that was done with money borrowed in that way?
2. Nan denye 1 an, eske omwens yon moun nan kay te resevwa yon kredi nan men yon lot enstitiyon ki konn bay kredi?	2. In the past year has at least one person in the house borrowed money from another institution?
Si wi,	If yes,
Ki pi gwo bagay ki te fet ak kob prete sa?	What is the most important thing that was done with money borrowed in that way?
3. Nan denye ane, eske omwens yon moun nan kay la te prete oubyen sevi avek kob ki sot nan men yon zanmi, fanmi, patwon oubyen vwazen?	3. In the past year has at least one person in the house borrowed money from a friend, family, patrone or neighbor?
Si wi,	If yes,
Ki pi gwo bagay ki te fet ak kob prete sa?	What is the most important thing that was done with money borrowed in that way?
Lot Metadata	More Meta Data
Nou presk fini. Mwen jis ta vle mande de ti sevis pou konpayi ki bam djob la ka verifye ke mwen vreman fe yon entevu avek nou.	We are about to finish. I would like to ask two more quick questions so that I can have evidence for my employers that I did the survey.
Ki nimewo telefonn ou oubyen yon nimewo yo ka jwenn ou?	Telephone number 1
2eme numewo telefon	Telephone number 2
Eske ou gen yon pyes idantite nan min?	Do you have an ID card handy?
Eske mwen met tire foto de li	May I take a picture of your ID?
Pran foto a	Take photo
M ka pran foto de ou avek fanmi o?	May I take a picture of you and your family?
Pran foto a	Take photo
Eske nou ka itilize fotow poun fe animasyon?	Can we use the photo for information purposes?
Pran koodone GPS	GPS Coordinates

ANNEX 8: QUALITY ASSESSMENT OF THE EVALUATION REPORT

Evaluand Title:

PIMS ID 01968 Haiti Sustainable Energy Project II (HSE II)

All UNEP evaluations are subject to a quality assessment by the Evaluation Office. This is an assessment of the quality of the evaluation product (i.e. evaluation report) and is dependent on more than just the consultant's efforts and skills.

	UNEP Evaluation Office Comments	Final Report Rating
Substantive Report Quality Criteria		
<p>Quality of the Executive Summary:</p> <p>The Summary should be able to stand alone as an accurate summary of the main evaluation product. It should include a concise overview of the evaluation object; clear summary of the evaluation objectives and scope; overall evaluation rating of the project and key features of performance (strengths and weaknesses) against exceptional criteria (plus reference to where the evaluation ratings table can be found within the report); summary of the main findings of the exercise, including a synthesis of main conclusions (which include a summary response to key strategic evaluation questions), lessons learned and recommendations.</p>	<p>Final report:</p> <p>The Executive Summary is too long, it should have focused on the main evaluation findings. Besides, it does not include a summary response of the key strategic evaluation questions.</p>	4
<p>I. Introduction</p> <p>A brief introduction should be given identifying, where possible and relevant, the following: institutional context of the project (sub-programme, Division, regions/countries where implemented) and coverage of the evaluation; date of PRC approval and project document signature); results frameworks to which it contributes (e.g. Expected Accomplishment in POW); project duration and start/end dates; number of project phases (where appropriate); implementing partners; total secured budget and whether the project has been evaluated in the past (e.g. mid-term, part of a synthesis evaluation, evaluated by another agency etc.)</p> <p>Consider the extent to which the introduction includes a concise statement of the purpose of the evaluation and the key intended audience for the findings?</p>	<p>Final report:</p> <p>The introduction presents most of the required information.</p>	5
<p>II. Evaluation Methods</p> <p>A data collection section should include: a description of evaluation methods and information sources used, including the number and type of respondents; justification for methods used (e.g. qualitative/ quantitative; electronic/face-to-face); any selection criteria used to identify respondents, case studies or sites/countries visited; strategies used to increase stakeholder engagement and consultation; details of how data were verified (e.g. triangulation, review by stakeholders etc.).</p> <p>Methods to ensure that potentially excluded groups (excluded by gender, vulnerability or marginalisation) are reached and their experiences captured effectively, should be made explicit in this section.</p>	<p>Final report:</p> <p>The survey is well detailed. The sampling strategy of the people interviewed could have been more detailed. Methods to ensure that potentially excluded groups are reached are missing.</p>	5

<p>The methods used to analyse data (e.g. scoring; coding; thematic analysis etc.) should be described.</p> <p>It should also address evaluation limitations such as: low or imbalanced response rates across different groups; gaps in documentation; extent to which findings can be either generalised to wider evaluation questions or constraints on aggregation/disaggregation; any potential or apparent biases; language barriers and ways they were overcome.</p> <p>Ethics and human rights issues should be highlighted including: how anonymity and confidentiality were protected and strategies used to include the views of marginalised or potentially disadvantaged groups and/or divergent views. Is there an ethics statement?</p>		
<p>III. The Project</p> <p>This section should include:</p> <ul style="list-style-type: none"> • <i>Context</i>: Overview of the main issue that the project is trying to address, its root causes and consequences on the environment and human well-being (i.e. synopsis of the problem and situational analyses). • <i>Results framework</i>: Summary of the project's results hierarchy as stated in the ProDoc (or as officially revised) • <i>Stakeholders</i>: Description of groups of targeted stakeholders organised according to relevant common characteristics • <i>Project implementation structure and partners</i>: A description of the implementation structure with diagram and a list of key project partners • <i>Changes in design during implementation</i>: Any key events that affected the project's scope or parameters should be described in brief in chronological order • <i>Project financing</i>: Completed tables of: (a) budget at design and expenditure by components (b) planned and actual sources of funding/co-financing 	<p>Final report:</p> <p>Well detailed section.</p>	<p>5</p>
<p>IV. Theory of Change</p> <p>The <i>TOC at Evaluation</i> should be presented clearly in both diagrammatic and narrative forms. Clear articulation of each major causal pathway is expected, (starting from outputs to long term impact), including explanations of all drivers and assumptions as well as the expected roles of key actors.</p> <p>This section should include a description of how the <i>TOC at Evaluation</i>⁸² was designed (who was involved etc.) and applied to the context of the project? Where the project results as stated in the project design documents (or formal revisions of the project design) are not an accurate reflection of the project's intentions or do not follow UNEP's definitions of different results levels, project results may need to be re-phrased or reformulated. In such cases, a summary of the project's results hierarchy</p>	<p>Final report:</p> <p>The TOC at Evaluation captures well the complex results framework of the project and its numerous evolutions. Gender is well considered. The narrative of the causal pathways should have been more detailed. It just lists the drivers and assumptions.</p>	<p>4</p>

⁸² During the Inception Phase of the evaluation process a *TOC at Evaluation Inception* is created based on the information contained in the approved project documents (these may include either logical framework or a TOC or narrative descriptions), formal revisions and annual reports etc. During the evaluation process this TOC is revised based on changes made during project intervention and becomes the *TOC at Evaluation*.

<p>should be presented for: a) the results as stated in the approved/ revised Prodoc logframe/TOC and b) as formulated in the <i>TOC at Evaluation</i>. The two results hierarchies should be presented as a two-column table to show clearly that, although wording and placement may have changed, the results 'goal posts' have not been 'moved'.</p> <p>Check that the project's effect on equality (i.e. promoting human rights, gender equality and inclusion of those living with disabilities and/or belonging to marginalised/vulnerable groups) has been included within the TOC as a general driver or assumption where there was no dedicated result within the results framework. If an explicit commitment on this topic was made within the project document then the driver/assumption should also be specific to the described intentions.</p>		
<p>V. Key Findings</p> <p>A. Strategic relevance:</p> <p>This section should include an assessment of the project's relevance in relation to UNEP's mandate and its alignment with UNEP's policies and strategies at the time of project approval. An assessment of the complementarity of the project at design (or during inception/mobilisation⁸³), with other interventions addressing the needs of the same target groups should be included. Consider the extent to which all four elements have been addressed:</p> <ol style="list-style-type: none"> i. Alignment to the UNEP Medium Term Strategy (MTS) and Programme of Work (POW) ii. Alignment to Donor/GEF Strategic Priorities iii. Relevance to Regional, Sub-regional and National Environmental Priorities iv. Complementarity with Existing Interventions 	<p>Final report:</p> <p>Detailed discussions of all elements.</p>	<p>5</p>
<p>B. Quality of Project Design</p> <p>To what extent are the strength and weaknesses of the project design effectively <u>summarized</u>?</p>	<p>Final report:</p> <p>Good summary.</p>	<p>6</p>
<p>C. Nature of the External Context</p> <p>For projects where this is appropriate, key <u>external</u> features of the project's implementing context that limited the project's performance (e.g. conflict, natural disaster, political upheaval⁸⁴), and how they affected performance, should be described.</p>	<p>Final report:</p> <p>Detailed section.</p>	<p>5</p>
<p>D. Effectiveness</p> <p>(i) Outputs and Project Outcomes: How well does the report present a well-reasoned, complete and evidence-based assessment of the a) availability of outputs, and b) achievement of project outcomes? How convincing is the discussion of attribution and contribution, as well as the constraints to attributing effects to the intervention.</p> <p>The effects of the intervention on differentiated groups, including those with specific needs due to gender,</p>	<p>Final report:</p> <p>The availability of outputs is well detailed. The Achievements of outcomes is limited to the assessments of assumptions and drivers. The achievements of the different outcomes per se should have been assessed.</p>	<p>3</p>

⁸³ A project's inception or mobilization period is understood as the time between project approval and first disbursement. Complementarity during project implementation is considered under Efficiency, see below.

⁸⁴ Note that 'political upheaval' does not include regular national election cycles, but unanticipated unrest or prolonged disruption. The potential delays or changes in political support that are often associated with the regular national election cycle should be part of the project's design and addressed through adaptive management of the project team.

vulnerability or marginalisation, should be discussed explicitly.	The survey results could have been more used for instance.	
<p>(ii) Likelihood of Impact: How well does the report present an integrated analysis, guided by the causal pathways represented by the TOC, of all evidence relating to likelihood of impact?</p> <p>How well are change processes explained and the roles of key actors, as well as drivers and assumptions, explicitly discussed?</p> <p>Any unintended negative effects of the project should be discussed under Effectiveness, especially negative effects on disadvantaged groups.</p>	<p>Final report:</p> <p>Rather than the status of achievements of the Intermediate States, the drivers and assumptions to reach them and the impact should have been assessed.</p>	3
<p>E. Financial Management</p> <p>This section should contain an integrated analysis of all dimensions evaluated under financial management and include a completed 'financial management' table.</p> <p>Consider how well the report addresses the following:</p> <ul style="list-style-type: none"> • <i>Adherence</i> to UNEP's financial policies and procedures • <i>completeness</i> of financial information, including the actual project costs (total and per activity) and actual co-financing used • <i>communication</i> between financial and project management staff 	<p>Final report:</p> <p>It summaries well the difficulties to understand the financial data made available for the evaluation.</p>	5
<p>F. Efficiency</p> <p>To what extent, and how well, does the report present a well-reasoned, complete and evidence-based assessment of efficiency under the primary categories of cost-effectiveness and timeliness including:</p> <ul style="list-style-type: none"> • Implications of delays and no cost extensions • Time-saving measures put in place to maximise results within the secured budget and agreed project timeframe • Discussion of making use during project implementation of/building on pre-existing institutions, agreements and partnerships, data sources, synergies and complementarities with other initiatives, programmes and projects etc. • The extent to which the management of the project minimised UNEP's environmental footprint. 	<p>Final report:</p> <p>Detailed section.</p>	5
<p>G. Monitoring and Reporting</p> <p>How well does the report assess:</p> <ul style="list-style-type: none"> • Monitoring design and budgeting (<i>including SMART results with measurable indicators, resources for MTE/R etc.</i>) • Monitoring of project implementation (<i>including use of monitoring data for adaptive management</i>) • Project reporting (<i>e.g. PIMS and donor reports</i>) 	<p>Final report:</p> <p>Some confusion with the Project Reporting sub-criterion concept. Some of the reports assessed here were actually project deliverables and not part of the M&E activities of the project.</p>	4
<p>H. Sustainability</p> <p>How well does the evaluation identify and assess the key conditions or factors that are likely to undermine or contribute to the persistence of achieved project outcomes including:</p> <ul style="list-style-type: none"> • Socio-political Sustainability • Financial Sustainability • Institutional Sustainability 	<p>Final report:</p> <p>Appropriate analysis.</p>	5

<p>I. Factors Affecting Performance</p> <p>These factors are <u>not</u> discussed in stand-alone sections but are integrated in criteria A-H as appropriate. Note that these are described in the Evaluation Criteria Ratings Matrix. To what extent, and how well, does the evaluation report cover the following cross-cutting themes:</p> <ul style="list-style-type: none"> • Preparation and readiness • Quality of project management and supervision⁸⁵ • Stakeholder participation and co-operation • Responsiveness to human rights and gender equity • Environmental and social safeguards • Country ownership and driven-ness • Communication and public awareness 	<p>Final report:</p> <p>Requirements are met.</p>	<p>5</p>
<p>VI. Conclusions and Recommendations</p> <p>i. Quality of the conclusions: The key strategic questions should be clearly and succinctly addressed within the conclusions section.</p> <p>It is expected that the conclusions will highlight the main strengths and weaknesses of the project and connect them in a compelling story line. Human rights and gender dimensions of the intervention (e.g. how these dimensions were considered, addressed or impacted on) should be discussed explicitly. Conclusions, as well as lessons and recommendations, should be consistent with the evidence presented in the main body of the report.</p>	<p>Final report:</p> <p>Section complete and strategic questions answered.</p>	<p>5</p>
<p>ii) Quality and utility of the lessons: Both positive and negative lessons are expected and duplication with recommendations should be avoided. Based on explicit evaluation findings, lessons should be rooted in real project experiences or derived from problems encountered and mistakes made that should be avoided in the future. Lessons are intended to be adopted any time they are deemed to be relevant in the future and must have the potential for wider application (replication and generalization) and use and should briefly describe the context from which they are derived and those contexts in which they may be useful.</p>	<p>Final report:</p> <p>Section complete and in line with the provided template.</p>	<p>5</p>
<p>iii) Quality and utility of the recommendations:</p> <p>To what extent are the recommendations proposals for specific action to be taken by identified people/position-holders to resolve concrete problems affecting the project or the sustainability of its results? They should be feasible to implement within the timeframe and resources available (including local capacities) and specific in terms of who would do what and when.</p> <p>At least one recommendation relating to strengthening the human rights and gender dimensions of UNEP interventions, should be given.</p> <p>Recommendations should represent a measurable performance target in order that the Evaluation Office can monitor and assess compliance with the recommendations.</p>	<p>Final report:</p> <p>Section complete and in line with the provided template.</p>	<p>5</p>

⁸⁵ In some cases 'project management and supervision' will refer to the supervision and guidance provided by UNEP to implementing partners and national governments while in others, specifically for GEF funded projects, it will refer to the project management performance of the executing agency and the technical backstopping provided by UNEP.

<p>In cases where the recommendation is addressed to a third party, compliance can only be monitored and assessed where a contractual/legal agreement remains in place. Without such an agreement, the recommendation should be formulated to say that UNEP project staff should pass on the recommendation to the relevant third party in an effective or substantive manner. The effective transmission by UNEP of the recommendation will then be monitored for compliance.</p> <p>Where a new project phase is already under discussion or in preparation with the same third party, a recommendation can be made to address the issue in the next phase.</p>		
<p>VII. Report Structure and Presentation Quality</p>		
<p>i) Structure and completeness of the report: To what extent does the report follow the Evaluation Office guidelines? Are all requested Annexes included and complete?</p>	<p>Final report: Follows UNEP's Evaluation Office Guidelines.</p>	<p>5</p>
<p>ii) Quality of writing and formatting: Consider whether the report is well written (clear English language and grammar) with language that is adequate in quality and tone for an official document? Do visual aids, such as maps and graphs convey key information? Does the report follow Evaluation Office formatting guidelines?</p>	<p>Final report: The Draft Report was appropriately modified to use an adequate tone.</p>	<p>5</p>
<p>OVERALL REPORT QUALITY RATING</p>		<p>4.7</p>

A number rating 1-6 is used for each criterion: Highly Satisfactory = 6, Satisfactory = 5, Moderately Satisfactory = 4, Moderately Unsatisfactory = 3, Unsatisfactory = 2, Highly Unsatisfactory = 1. The overall quality of the evaluation report is calculated by taking the mean score of all rated quality criteria.

At the end of the evaluation, compliance of the evaluation process against the agreed standard procedures is assessed, based on the table below. *All questions with negative compliance must be explained further in the table below.*

Evaluation Process Quality Criteria	Compliance	
	Yes	No
Independence:		
1. Were the Terms of Reference drafted and finalised by the Evaluation Office?	X	
2. Were possible conflicts of interest of proposed Evaluation Consultant(s) appraised and addressed in the final selection?	X	
3. Was the final selection of the Evaluation Consultant(s) made by the Evaluation Office?	X	
4. Was the evaluator contracted directly by the Evaluation Office?	X	
5. Was the Evaluation Consultant given direct access to identified external stakeholders in order to adequately present and discuss the findings, as appropriate?	X	
6. Did the Evaluation Consultant raise any concerns about being unable to work freely and without interference or undue pressure from project staff or the Evaluation Office?		X
7. If Yes to Q6: Were these concerns resolved to the mutual satisfaction of both the Evaluation Consultant and the Evaluation Manager?		
Financial Management:		
8. Was the evaluation budget approved at project design available for the evaluation?	X	
9. Was the final evaluation budget agreed and approved by the Evaluation Office?	X	
10. Were the agreed evaluation funds readily available to support the payment of the evaluation contract throughout the payment process?		X
Timeliness:		
11. If a Terminal Evaluation: Was the evaluation initiated within the period of six months before or after project operational completion? Or, if a Mid Term Evaluation: Was the evaluation initiated within a six-month period prior to the project's mid-point?		X
12. Were all deadlines set in the Terms of Reference respected, as far as unforeseen circumstances allowed?	X	
13. Was the inception report delivered and reviewed/approved prior to commencing any travel?		X
Project's engagement and support:		
14. Did the project team, Sub-Programme Coordinator and identified project stakeholders provide comments on the evaluation Terms of Reference?	X	
15. Did the project make available all required/requested documents?	X	
16. Did the project make all financial information (and audit reports if applicable) available in a timely manner and to an acceptable level of completeness?		X
17. Was adequate support provided by the project to the evaluator(s) in planning and conducting evaluation missions?	X	
18. Was close communication between the Evaluation Consultant, Evaluation Office and project team maintained throughout the evaluation?	X	
19. Were evaluation findings, lessons and recommendations adequately discussed with the project team for ownership to be established?	X	
20. Did the project team, Sub-Programme Coordinator and any identified project stakeholders provide comments on the draft evaluation report?	X	
Quality assurance:		
21. Were the evaluation Terms of Reference, including the key evaluation questions, peer-reviewed?	X	
22. Was the TOC in the inception report peer-reviewed?	X	
23. Was the quality of the draft/cleared report checked by the Evaluation Manager and Peer Reviewer prior to dissemination to stakeholders for comments?	X	

24. Did the Evaluation Office complete an assessment of the quality of both the draft and final reports?	X	
Transparency:		
25. Was the draft evaluation report sent directly by the Evaluation Consultant to the Evaluation Office?	X	
26. Did the Evaluation Manager disseminate (or authorize dissemination) of the cleared draft report to the project team, Sub-Programme Coordinator and other key internal personnel (including the Reference Group where appropriate) to solicit formal comments?	X	
27. Did the Evaluation Manager disseminate (or authorize dissemination) appropriate drafts of the report to identified external stakeholders, including key partners and funders, to solicit formal comments?	X	
28. Were all stakeholder comments to the draft evaluation report sent directly to the Evaluation Office	X	
29. Did the Evaluation Consultant(s) respond adequately to all factual corrections and comments?	X	
30. Did the Evaluation Office share substantive comments and Evaluation Consultant responses with those who commented, as appropriate?	X	

Provide comments / explanations / mitigating circumstances below for any non-compliant process issues.

<u>Process Criterion Number</u>	<u>Evaluation Office Comments</u>
10	<p>There were delays for the final payment of the consultant. See below answer from the financial team: <i>"I am sorry for this cash insufficiency issue preventing on disbursing a final payment to Timothy. We have been following up with UNOPS Haiti on a refund the fund balance of 50K supporting HSE II project several times. However, they wait for the process of transferring UNEP vehicle procured thru this project completed and then shall issue a final financial report and refund the balance accordingly.</i></p> <p><i>We manage to write off this vehicle and submit a handover to UNOPS and urge them to issue final FS and refund the balance. We are following up closely."</i></p>
11	The TE was launched 8 months after the project technical completion.
13	The Inception Report was reviewed internally by UNEP Evaluation before the field mission and shared with the Project Team for review before the field mission. The consultant's availabilities to travel were limited to the very beginning of May. The Inception Report was approved during the field mission.
16	Despite several emails asking for detailed consolidated financial information to the FMO, no detailed consolidated budget was made available, and it was difficult to give sense to the available financial data.